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PENNSYLVANIA'S SECOND YEAR AT WAR

PENNSYLVANIA'S
SECOND YEAR AT WAR

DECEMBER 7, 1942 - DECEMBER 7, 1943

by

S. K. Stevens
Marvin W. Schlegel
and Joseph T. Kingston

Commonwealth of Pennsylvania
PENNSYLVANIA HISTORICAL AND MUSEUM COMMISSION
Harrisburg, 1945

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FOREWORD

THE year 1943 was one of vast contribution by Pennsylvanians to the war effort of the United Nations. It was a period of mobilization of every resource and energy of a great Commonwealth, following a year of decision, and they were marshalled for the production of food, munitions, ordnance and other necessities of a mighty offensive. Results of that colossal endeavor have been felt on the battlefronts of North Africa, Italy and the North and South Pacific and on the plains of Russia. The supplies, foods and other articles have gone over the seven seas to all parts of the world.

In accord with glorious traditions Pennsylvania established a great reservoir of strength from which the forces of freedom have been able to draw the manpower and material to turn the scale of battle definitely in our favor. The importance of what Pennsylvania grew on its farms, extracted from its mines and oil wells and turned out of its mills and factories, large and small, in 1943 was to count even more strongly in 1944. It would aid the rising tempo of the war against our enemy on every front, on the sea and land and in the air.

We are proud that Pennsylvania, through the instrumentality of its Historical Commission, in cooperation with the State Council of Defense, has continued to be a leader in the task of collecting, preserving and making available for public information material which will relate the story of Pennsylvania's wartime achievements. It is not yet possible to tell that story fully and completely. The work of collecting information is still going on and much of what is done in the State cannot yet safely be revealed under reasonable security regulations.

It has been possible, however, in this second annual review of the State's war effort to include much concerning war production and the numerous military and naval installations in Pennsylvania. There is provided in this account enough to make every Pennsylvanian even firmer in faith in the dignity and power of our Commonwealth.

Pennsylvanians continued, during the second year of the war, to win distinction on every battlefront. Our native sons stood among the top ranking military and naval leaders of the war, while in the ranks men and women from Pennsylvania demonstrated in action the heroism that always has marked the sons and daughters of the Keystone State.

On the home front the ingenuity and resourcefulness of our business men, our farmers, and workers in the mines and mills were never better displayed or under conditions of greater pressure. Hundreds of thousands of men and women continued willingly to bear the brunt of civilian defense activities, war relief, rationing of essential commodities and promotion of the sale of War Bonds and Stamps. In stores, factories, and on the farms more and more of our boys and girls gave their bit in the serious labor shortage. Again, I extend to them the heartfelt gratitude of their Commonwealth.

The tasks imposed upon our citizens by war were many and hard, as these pages will show. Much effort and real sacrifice were necessary. Many of the pleasures of a peacetime existence had to be forgotten as the demands of the war for materials and supplies increased. Pennsylvanians met these temporary dislocations of normal living with a fortitude and patience worthy of their frontier ancestry.

The story of 1943 strengthened our confidence in ultimate victory. Remembering the three hundredth anniversary of the birth of the founder of our Commonwealth, William Penn, let us determine that out of these troubled times there shall come a rededication to the principles of justice, toleration and freedom which he so nobly upheld. If those principles had completely mastered the hearts and minds of men, this war would never have been. As we devote ourselves to the cause of freedom today, may we renew our pledge to maintain those ideals of our Quaker Founder, both today and for the future, in the hope that the world of peace William Penn envisioned may some day become a reality.

Edward Martin

Governor of the Commonwealth.

EDITORIAL PREFACE

WHILE it is based upon much more complete sources of information than were available for its predecessor, *Pennsylvania's First Year at War,* this bulletin is by no means the last word on Pennsylvania's war history. There are still many avenues of information to be explored, and new ones open up with great frequency. It has not been possible, within the limits of this brief account, to tell the full story of Pennsylvania's war record in 1943. An effort has been made to keep the account within easily readable limits and to leave the fuller and more complete narrative until peacetime. Abbreviation and condensation have been exercised ruthlessly, and the effort has been to concentrate on those things which were typical and serve to represent what many others have done. This is especially true as to the story of war production. An entire book would be needed adequately to cover this story, and the same is true of many other phases of the war effort.

The intent has been to cover the calendar year of 1943, and the narrative, so far as possible, is confined to events of that year. In a few cases where information of importance has come to light or may now be released which pertains to the earlier war years, this background has been supplied. In a few instances references are made to changes of policy or plans developed in 1943 which were to be activated in 1944. Footnotes indicate some shifts in military assignment announced after the close of the year. Material contained in *Pennsylvania's First Year at War* has not been repeated except inevitably in the case of names or similar basic facts necessary to understanding developments which are of a continuing nature.

The list of "E" and "M" award firms is no doubt incomplete but based upon such sources of information as were available. Virtually every industry in the State is engaged in some type of war work. There are many individuals and organizations which have contributed to the war effort in various ways. The Historical Commission would welcome information on any of these. Persons connected with industries, institutions or organizations contributing to the war in any way are invited to write the Pennsylvania Historical and Museum Commission, State Museum Building, Harrisburg, and provide an account of what they are doing.

Organizations and individuals too numerous to mention have contributed valuable time and advice in furnishing special material for the war history file and for use in this bulletin. Mr. Tom Campbell, Pittsburgh Regional Editor of *Iron Age,* did a special study on steel production. Mr. Charles Graham, president of the Pittsburgh and West Virginia Railroad, wrote a special article on wartime work of the Pennsylvania railroads. The Pennsylvania War Fund, Inc., and the Pennsylvania War Finance Committee have cooperated in providing material on the war finance and relief problems. The National War Fund, Inc., collected special reports on the Pennsylvania activity of a large number of foreign relief organizations. Mr. William Hardy, of the Pennsylvania Newspaper Publishers' Association, has helped to collect and to analyze material relating to the wartime work of the press. Mr. A. B. Millar, of the Pennsylvania Electric Association, has furnished very helpful material.

Charles A. B. Heinze, secretary of the Pennsylvania Restaurant Association, and Charles H. Von Tagen, secretary and director of the Pennsylvania Grocers' Association, helped with special items concerning their respective fields. Dun and Bradstreet took the trouble to provide a special analysis of business listings in the State. Mr. Gordon Alderfer, of the National Service Board for Religious Objectors, aided in securing valuable material concerning the several Civilian Public Service units in Pennsylvania. Many industries, too numerous to list, contributed special articles concerning their war production activities. The Aluminum Company of America prepared a special article on "The Aluminum Industry in Pennsylvania." Mr. R. T. Gebler, historical section of the Philadelphia Ordnance District; Capt. H. M. Burrowes, historical officer for the Pittsburgh Ordnance District, and Capt. Graves Taylor, Cleveland Ordnance District historian, were very cooperative in providing access to information collected by their respective offices. Commander J. L. Tinney, U. S. N. R., Public Relations Officer for the Fourth Naval District, performed a similar service for the Navy. Public relations officers of numerous military and naval installations in the State have been most helpful in providing special information concerning their posts. The State departments and many Pennsylvania colleges prepared special reports on their activities.

The number of individuals and organizations that have helped make the war history collection a growing one and this publication possible is legion. To those mentioned above, as well as to many impossible to mention, the Commission and the staff in charge of preparing this bulletin extend sincere thanks for their very friendly and valuable services. They are invited to continue to contribute and others who have not previously known of this endeavor are likewise invited to share experiences and information.

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PENNSYLVANIA'S
SECOND YEAR AT WAR

I. THE MEN OF THE YEAR

IN 1943, the "Man of the Year" was a Pennsylvanian.

An American soldier, he was all American soldiers, everywhere. He was the man whom the nation had come to know as its greatest general; in this solemn time of war he was one truly indispensable citizen. The staggering magnitude of his task could not possibly be overestimated: General George Catlett Marshall was running the world's greatest war.

As Chief of Staff and General of all our armies, the 63-year-old native of Uniontown, Fayette County, was serving as the "global commander" of Allied armed might. General Marshall, in four short years, had built the greater part of that armed might from the raw material of bewildered civilians. He had created an American Army with a muster-roll of millions; he had trained that Army and he had equipped it with the finest battle-tools of all times. Then, and only then, he had sent it into action on half a dozen fronts.

When 1943 ended, the results of all General Marshall's patient work were plainly evident to the nation. His field armies, already in action, were winning, or at least they were going forward on all their fronts. His aircraft were bringing systematic destruction to the outposts of Japan and the very heart of Germany; his Services of Supply were placing combat weapons, food and equipment in the hands of our fighting Allies, and his naval colleagues were clearing the seas of enemy opposition.

Most significant of all, however, were his preparations for the grand climactic assault on Continental Europe. His blueprints were ready, the hour was set, and the men he had gathered and trained for the task were willing and able to tackle it.

General Marshall had completed the most strenuous and responsible year of his career. He had traveled around the world, visiting and inspecting the troops who would carry out his orders; with President Roosevelt, Prime Minister Churchill and his fellow-Pennsylvanian, General Henry "Hap" Arnold, of Gladwynne, Montgomery County, Commander of the American Army Air Forces, he had attended the historic conferences at Quebec, Cairo and Teheran. He had reported to the

American people on the exact status of their war machine, its accomplishments to date and its expected potentialities. He had watched his great Army go into the unwarlike but vitally necessary business of running the nation's railroads. With all this, he had found time to visit the Gettysburg Battlefield and re-examine the classic strategy of that famous combat with British Field Marshal Dill.[1]

The General's Satellites

Much of the detail work of general staff planning continued to rest on the shoulders of General Marshall's deputy chief of staff, Lieutenant General Joseph T. McNarney, of Emporium, Cameron County.[2] From the command of the Armored Force, York's Lieutenant General Jacob L. Devers was sent to England in May to take charge of all American forces there, when an airplane crash ended the life of the former commander. A pre-invasion shuffle in December sent him to Italy to head the American forces in the Mediterranean and to act as deputy Allied commander in that theater.[3] The same shift transferred Lieutenant General Carl "Tooey" Spaatz, of Boyertown, Berks County, to England to command the Strategic American Air Force operating against Germany. The colorful air chieftain had previously turned in a brilliant performance in the North African theater over Tunis, Bizerte, Sicily, and later Italy.[4]

General George Grunert, of White Haven, Luzerne County, attained three-star rank when he became commanding general of the First Army and the Eastern Seaboard Command. A fifth lieutenant general was Stanley D. Embick, of Greencastle, Franklin County, who was chairman of the Inter-American Defense Board.

Besides this impressive representation on the high command, Pennsylvania in 1943 could claim a score of major generals and more than fifty brigadiers.[5] Outstanding among these was Major General Lewis H. Brereton, of Pittsburgh, who at year's end was poised in England ready to back up the invasion with his Ninth Air Force. General Brereton had found seasickness an insuperable obstacle to his naval career two months after he graduated from Annapolis in 1911 and accepted an Army commission instead. In World War I he commanded an air squadron in France and was twice decorated for a fight with four Fokkers. When the Japs struck on Pearl Harbor Day, he was in charge of our tiny air force in the Philippines. Making his escape to India, he organized the Ninth Air Force to strike back at the Nipponese in Burma and the Andamans. When Rommel drove deep into Egypt in 1942, he and the Ninth moved into the Middle East to support Montgomery's smashing assault all the way to Cap Bon. The collapse of Nazi resistance in Africa brought him his new job.[6]

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[1] Both Marshall and Arnold were promoted to the newly-created five-star rank, general of the army, in December, 1944.

[2] McNarney was transferred to Devers' Mediterranean post in September, 1944, and was promoted to full general in March, 1945.

[3] Devers became commander of the Sixth Army Group, which invaded Southern France, in August, 1944, and was promoted to full general in March, 1945.

[4] Spaatz was promoted to full general in March, 1945.

[5] A full list of all known Pennsylvanians of general rank, as of April, 1945, is given in the appendix.

Numbered among Pennsylvania's other generals was a set of brothers. The two Patch boys, Alexander and Joseph, had been born in Arizona, where their Washington County father was stationed while on military duty, but had grown to manhood in Lebanon. In 1943 both were major generals, Joseph being commander of the Trinidad base. "Sandy," who had commanded at Guadalcanal and New Caledonia, became chief of the Fourth Army Corps during the year.[7]

Brigadier General Idwal H. Edwards, who had grown up in Scranton and lived in Bloomsburg, moved from a Washington job as assistant chief of staff in charge of training to chief of staff of American forces in England, then to deputy commander of the American Air Force in the Mediterranean, acquiring a second star on his shoulders in the process. Major General Homer M. Groninger, of Port Royal, Juniata County, headed the New York Port of Embarkation, while Major General Paul W. Newgarden, Philadelphia, commanded the Tenth Armored Division.[8] Two other major generals, Frederick E. Uhl, reared in Allentown, and Henry Aurand, native of Tamaqua, Schuylkill County, headed the Fourth and Sixth Service Commands, respectively.

Among the brigadiers Uzal G. Ent, of Northumberland, won international fame by leading the daring raid on Ploesti in the early fall of 1943. Honesdale's Lyman L. Lemnitzer added to the laurels he had won by accompanying General Clark on his secret mission to North Africa preliminary to the invasion in November, 1942. He was successively assistant chief of staff of the Allied forces in the Mediterranean, deputy chief of staff of the Fifth Army, brigade commander in the Fifth Army, and later in the Seventh Army. Harrisburg's Donald A. Stroh was serving with the Ninth Infantry Division, while another native of Dauphin County, Harold Gilbert, of Halifax, headed the Office of Dependency Benefits.[9]

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[6] Brereton was promoted to lieutenant general, April 28, 1944, and given command of the Allied Airborne Army in August.

[7] Alexander Patch was placed in command of the Seventh Army early in 1944 and took part in the invasion of Southern France. In August he was promoted to lieutenant general.

[8] General Newgarden was killed in a plane crash, July 14, 1944, the first Pennsylvania general to die in this war.

Afloat and Ashore

In the fighting ships and the myriad shore stations of the United States Navy, thousands of Pennsylvanians were carrying on the honorable traditions of the sea service. Here again the second year of World War II found a sizable roster of leaders and heroes. Ranking the list was Admiral Harold Stark, of Wilkes-Barre, who continued at his post of Chief of United States Naval Forces in European waters. Admiral Stark's ships and men rounded out a dramatic and highly successful year of continuous action, protecting and aiding the North African, Sicilian, and Italian operations. In direct command of the amphibious forces making these landings was a Philadelphian, Rear Admiral Alan G. Kirk.[10]

Two retired admirals had returned to active duty. Arthur J. Hepburn, of Carlisle, was serving as chairman of the Naval General Board, while Edward C. Kalbfus, of Mauch Chunk, Carbon County, was another member of the board. Two other high-ranking Pennsylvanians had retired from service at the end of 1942. They were Vice Admiral Charles S. Freeman, Erie, formerly commandant of the Northwest Sea Frontier at Seattle, and Rear Admiral Charles Oman, of Light Street, Columbia County, who had headed the Naval Medical Center at Washington, D. C.

Serving in the office of Admiral Ernest J. King, Chief of Naval Operations, were two Pennsylvania vice admirals. Richard S. Edwards, of Philadelphia, was King's chief of staff, while John H. Newton, Pittston native, was sub-chief of naval operations. In October Admiral Newton was transferred to the Pacific to become deputy to Admiral Nimitz. Other important Washington assignments were held by Vice Admiral Alfred W. Johnson, Philadelphia, member of the Joint U. S.-Mexican Defense Commission, Rear Admiral Randall Jacobs, Danville, Chief of Naval Personnel, and Rear Admiral Wilson Brown, Philadelphia, Naval Aide to the President.[11]

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[9] Ent, Lemnitzer, and Stroh were promoted to major generals in 1944.

[10] Kirk was promoted to vice admiral in 1944 and made commander of U. S. Naval forces in France.

[11] Jacobs was promoted to vice admiral early in 1944. Brown retired late in the year and was immediately recalled to duty with the rank of vice admiral. Edwards was promoted to full admiral in 1945.

Rear Admiral Thomas C. Kinkaid, a Philadelphia resident, saw the successful conclusion of his Northern Pacific campaign against the Japanese in the Aleutian Islands, that ended with the re-occupation of Attu and Kiska, and transferred his activities to the Southwest Pacific.[12] The invasion of the Gilberts in November was backed up by two Chester Countians, Vice Admiral Robert C. Giffen, West Chester, heading fire support groups, and Rear Admiral Charles A. Pownall, a native of Atglen, commander of a task force.

Pearl Harbor was the station of two Pennsylvania rear admirals, William R. Furlong, Roscoe, Washington County, who was commandant of the Navy Yard, and John Herbert Brown, Jr., of Canton, Bradford County, who had charge of the submarine base. Another rear admiral, Charles Mason, Harrisburg, was commanding the Naval Air Training Station at Corpus Christi, Texas, after service on the famed aircraft carrier *Hornet*. Pennsylvania had two native sons who were major generals in the Marine Corps, John Marston, Somerset, and Clayton B. Vogel, Philadelphia, while a third, Keller Emrick Rockey, had spent his boyhood in Waynesboro, Franklin County.

The newly-restored rank of Commodore was bestowed on at least two Pennsylvanians during the year. One of these was Cortlandt Chesterfield Baughman of West Newton, Westmoreland County, who was appointed Commandant of the United States Naval Operating Base at Londonderry, Ireland. The other was Commodore Oscar Smith, a staff officer for the Chief of Naval Operations, Washington, D. C., who makes his home in Scranton, Lackawanna County.

Among the naval heroes of the war to date stand the names of six Pennsylvania commanders, who fought ships in the famous "Desron Two," or Destroyer Squadron No. 2, which, according to the Navy Department, accomplished more than any other single unit during fleet operations in the Pacific fighting. "Desron Two" received the Presidential Citation. Its six skippers, one of whom was killed in action, hailed respectively from Valley Forge, Chester County; Smithville, Clearfield County; Altoona, Blair County; Philadelphia; Johnsonburg, Elk County, and Churchville, Bucks County.

Heroes All

Pennsylvania's heroes lie buried on a score of distant battlefields, beneath the waters of a dozen distant seas, and they are numbered in the hundreds. There was scarcely a community in the Commonwealth where the Star of Christmas, 1943, could not look down upon the Gold Star of supreme valor. These were the dead, heroes all.

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[12] Kinkaid was promoted to vice admiral in 1944 and full admiral in 1945.

But many of the boys came home—men now, or parts of men, wearing the indelible scars of war in body or in mind.

The Keystone State hailed her first wounded hero, permanently returned from the fighting fronts, in the early days of April, 1943. There had been others before, but the tribute to all of them was concentrated in Philadelphia's welcome to native son Albert A. Schmid, sergeant in the United States Marine Corps, blinded in action after killing an estimated 200 Japanese troops on Guadalcanal during the Battle of Tenaru. To Sergeant Schmid went the first wartime Hero Award presented by *The Philadelphia Inquirer,* consisting of a gold medal and $1,000, in a ceremony that drew thousands of cheering Philadelphians to the center of the Commonwealth's largest city. Detachments of all the armed services, including representatives of the Women's Reserve Corps (WAVES, WACS, SPARS, Marines and Navy Nurses) marched in the parade and stood at attention while Major General William G. Price, Jr., U. S. A., retired, made the presentation.

Two months later, on June 18, 1943, townspeople of Media, Delaware County, held a joint public welcome for Private First Class Jack Sugarman, United States Marine Corps, and Captain John G. Moe, Jr., United States Army Air Forces. Marine Jack Sugarman was officially credited with killing 132 Japanese troops in two days of combat on Guadalcanal, during which he also saved the lives of nine of his officers. He was awarded the Navy Cross and invalided home to recuperate from malaria. Twenty years old, Sugarman was one of the youngest of the State's living heroes. Captain Moe, feted with him, was the recipient of the Distinguished Flying Cross.

The Boys Come Home

With the memories of Lieutenant Colonel Boyd "Buzz" Wagner, now buried in his native Johnstown, Cambria County, still green, the Commonwealth welcomed home two additional distinguished young fliers, each wearing the silver oak leaves of the Lieutenant Colonel. The citizens of Erie learned that their hero, Lieutenant Colonel Philip Cochran, was none other than the model for the popular comic strip character drawn by Artist Milton Caniff for nationwide syndicate: "Flip Corkin" of "Terry and the Pirates." Cochran's real life heroics were scarcely less exciting than his comic strip adventures, although they occurred on the other side of the world. A most unorthodox young flying officer, Cochran won rapid promotion for his daredevil action against the Axis armies in North Africa. Thirty-two years old, the Erie flier staged a one-man raid on German Headquarters at Kairouan, south of Tunis, destroying it and breaking up a threatened counter-attack. In June, 1943, Lieutenant Colonel Cochran left his "Fighting Cock" Squadron to carry on in the Mediterranean actions and came home to Erie for a visit. Few returning celebrities were subjected to closer attention by the national press and newsreels. By September he was en route to new duties with China-Burma-India Air Forces, with a colonel's eagles on his shoulders.

Just before Christmas, 1943, Lieutenant Colonel John Gilpin Bright, 24-year-old fighter pilot from Reading and Philadelphia, returned home on leave after a daring escape from an enemy prison camp in Northern Italy. Bright, one of the Army's youngest majors at the time of his disappearance after action, had hung up a record for aerial combat unequalled by any other American airman. He had fought in four theaters of war, first with the famed American Volunteer Group in China, where he earned decorations from the Chinese Government and also the Distinguished Flying Cross. In July, 1942, he transferred to the regular Army Air Corps and went into action over Burma and the South Pacific. Here he increased his bag of Japanese planes to eight. By February, 1943, he had reported for duty in North Africa and within a short time was credited with two Axis planes—one German and the other Italian. In September he was reported "missing in action," but succeeded in getting back to his command after more than two months as a prisoner. Details of his escape could not be revealed.

There was a memorable homecoming in Catasauqua, Lehigh County, during the fall of 1943, when Major Thomas J. Lynch returned from the Pacific combat areas for his first visit since the beginning of the war. Officially credited with shooting down eleven Japanese Zero planes, the young officer had an unofficial "kill" tally of sixteen, and was hailed as one of the outstanding pilots in the Pacific. His decorations included the Purple Heart, Distinguished Flying Cross, Silver Star and Air Medal. He was group commander of a P-38 and P-39 squadron, whose record of aerial victories had reached 137 Japanese planes destroyed by June, 1943.[13]

Among the Missing

Still missing in action and presumed lost was Major William G. Benn, of Washington, Washington County, who disappeared while on an operational flight in the South Pacific on January 18, 1943. In November, 1943, Major Benn's widow was presented with the Distinguished Service Medal and the Air Medal, awarded posthumously to the Pennsylvania flier for "outstanding ability and devotion to duty." This phrase of the citation referred to Major Benn's development of the famous "skip bombing" technique, now in general use against Japanese shipping and naval combat forces. As originally put into practice by Major Benn, the technique consists of making a low-altitude run (masthead height) head on over the broadside of an enemy vessel, and releasing a bomb or bombs so that the missiles will strike the water at a flat angle and "skip" into the target—much as small boys scale flat stones across water. The advantage of the technique lies in the fact that the bomb thus skipped correctly will strike the target below the waterline, where, of course, it will cause much greater damage than an aboveboard explosion.

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[13] Lynch was killed in action over New Guinea, March 8, 1944; total score (official): 20 Jap planes.

"Beyond the Call of Duty"

Only for gallantry above and beyond the call of duty is the Congressional Medal of Honor awarded. Few indeed are those who receive the nation's highest gift for valor, and fewer still are those who live to wear its white-starred ribbon on their chests. Below the name of Chief Boatswain Edwin J. Hill, of Philadelphia, who died at Pearl Harbor, Pennsylvania in 1943 proudly inscribed the names of five more gallant heroes on its roster of Congressional Medal winners.

But one was able to fight again, Marine Lieutenant Mitchell Paige, of Dravosburg, Allegheny County, who received the award for heroism on Guadalcanal, October 26, 1942. Volunteering for a dangerous reconnaissance flight over Bougainville on June 16, 1943, brought the Medal of Honor to two other Pennsylvanians, Major Jay Zeamer, native of Carlisle, and Lieutenant Joseph R. Sarnoski, of Simpson, Lackawanna County. On the mission Lieutenant Sarnoski was killed and Major Zeamer seriously wounded. Major Ralph Cheli, of Bethlehem, was honored with the Congressional Medal for crashing his plane at sea on August 18, 1943, to save the rest of his formation. As a result of this action he became a Japanese prisoner. The fifth award went to Private James W. Reese, of Chester, who was killed at Mount Vassilio, Italy, August 5, 1943, while making a single-handed attack on a German machine-gun nest.[14]

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[14] A full list of Congressional Medal of Honor awards to Pennsylvanians to April 15, 1945, is given in the appendix.

"Said the General to the Private"

Pennsylvania's heroes were to be found in all ranks and grades of the services. One of the youngest was Private Joseph Walsh, 18, of Scranton, Lackawanna County, who had the distinction of being the first private soldier of the United States Army to wear the Distinguished Flying Cross. Private Walsh, a member of a combat air crew, received the decoration from the hands of his fellow-Pennsylvanian, Lieutenant General Carl "Tooey" Spaatz, who at that time commanded American air forces in the Mediterranean theater.

Some Corner of a Foreign Field

But for each of these, our heroes who attained some public recognition, there were hundreds of Pennsylvanians who died obscurely in the confusion of general battle. They are buried now on each of the world's great continents. Snow or sand or waving palms may blow across the lonely crosses; for others—many others—there are no markers but the roll and toss of restless seas. But there are Gold Stars at home, in almost every village of the great Keystone State, and these are the permanent badges of heroism—worn proudly and bravely by the hundreds of Pennsylvania families to whom 1943 was the year of profound and terrible finality.

II. CAMPS AND STATIONS

THE Philadelphia Navy Yard is one of the oldest and largest shipyards in the New World. During 1943, it was also the busiest.

While much of the Yard's activities were, of necessity, secret, many important facts were released for publication. During the early months of the year, while the hulls of a dozen warships were "going up" on the shipways, the French heavy cruiser *Montcalm* tied up at a Navy Yard berth—just in from a surprise crossing of the Atlantic, after escaping from Dakar, in French West Africa. She was damaged, and repairs were started immediately. But their completion would require months, and in the meantime, Philadelphia was host to hundreds of French sailors. Mingled with the British jack-tars already in Philadelphia, the French seamen, in their colorful uniforms and red pompons, lent an Old-World-port atmosphere to the Quaker City. Their life centered in the Navy Yard, where facilities for their stay had been made available.

This color was incidental to the dramatic tenor of life among the sprawling shipways along the Delaware River. Already, on the first anniversary of Pearl Harbor, the *U. S. S. New Jersey*—one of the world's three most powerful battleships—had gone down the ways. Her sister-ship, the *U. S. S. Wisconsin,* was building in the Yard and was scheduled for launching exactly one year to the day after the *New Jersey* had hit the water. These ships, each of 45,000 tons, were of the newest and most revolutionary type of fighting craft.

Besides this new construction, many British and Allied warships were in the Yard, undergoing extensive repairs for battle damage. Submarines, cruisers, destroyers were in various stages of construction or repair.

One of the most famous of these fighting ships was the U. S. Cruiser *Boise,* which had returned to Philadelphia in November, 1942, after an incredible half-hour of action off the Solomon Islands during the night of October 11-12. The *Boise* came into the Navy Yard bearing heavy battle scars, and a report that she had lost three officers and 104 men of her complement in 27 minutes of fighting. But she also wore six painted Japanese flags and the silhouettes of three Jap cruisers and three Jap destroyers—enemy ships sent to the bottom by the *Boise's* flaming guns during that same brief period of time. In 1943, the *Boise* again went to sea, fit and ready for action.

The story of the Philadelphia Navy Yard cannot be told solely in accents of heroism. Although heroes and the heroic form a large part of the tradition at P. N. Y., the real story of its activity in World War II lies in the trite and commonplace efforts of free men and free women to guarantee their blessings. It is a story of decision: Decision on the part of Pennsylvanians who knew that a job was waiting. That job was done, and done well. In the training schools, the shops and the shipways, the days and nights of 1943 presented a bewildering spectacle of activity, details of which would be for the most part unintelligible to the non-nautical layman. The results alone were concrete and understandable. They were results obtained in a dozen amphibious battle operations, in score of actions-at-sea, and in the free movement of precious convoys through waters from which danger had been routed.

Middletown Air Service Command Depot

During 1943, the Air Service Command Depot at Middletown, Pennsylvania, reached full growth. A gigantic installation lying along the flat eastern bank of the Susquehanna River just ten miles south of Harrisburg, Middletown was one of eleven such depots in the United States serving the complete needs of Army Air Forces stationed at home and throughout the world.

Center of the installation was Olmsted Field, a large airdrome surrounded by the various buildings and hangars of the Depot. Here arrived and departed giant warplanes, the great Army transports and all varieties of military fighting, observation and patrol planes. Directly from the battle areas came combat-scarred Liberators and Fortresses, to be rebuilt and returned to action. Here new paint covered old bloodstains, and here dangerously worn motors were replaced or repaired; here newly-developed equipment was installed, and here veteran bombers, wounded and patched in scores of places, virtually were reborn as brand-new fighting aircraft.

But this was only one function of the Depot. Beyond the huge steel and concrete hangars of the repair shops were the vast warehouses, where stock bins held more than 285,000 separate items of maintenance parts. Other warehouses and building shops housed hundreds of aircraft engines, ready for shipment wherever they might be needed. Additional hundreds of engines were in process of repair or overhaul.

The movement and routing of military air freight was another major activity at Olmsted Feld. Hundreds of tons of vital material moved in and out across the runways, while rail and motor freight moved the more bulky and low-priority material to and from the Depot.

To carry on its work, Middletown Air Service Command Depot utilized the services of thousands of civilian workers, most of whom were trained to aircraft service and maintenance tasks in specialized class-shops set up and operated by the Depot. Military personnel supervised the work of all civilian shops. The Depot drew off workers from the six-county area of Dauphin, Cumberland, Perry, York, Lancaster and Juniata, through a central employment office in downtown Harrisburg.

Mechanicsburg Naval Supply Depot

One hundred miles from the sea, the United States Navy completed its largest inland supply depot on July 1, 1943. Located at Mechanicsburg, Cumberland County, this Depot occupied 854 acres and consisted of 57 huge warehouses—each 200 by 600 feet—a barracks for a detachment of United States Marines, an administrative building, a cafeteria and three station hospitals. From the Cumberland Valley line of the Pennsylvania Railroad, eighty service tracks curved into the Depot, and more than 3,000 employees were engaged in the endless business of loading and unloading, storing, cataloging and expediting thousands of tons of naval supplies.

The Mechanicsburg Depot specialized in Diesel engine parts, and its warehouses held complete units for the propulsion of almost every type of fighting and service craft afloat. Storage bins also contained all parts of every type of marine engine, and a large force was employed in the repair and maintenance of the myriad internal combustion engines used by or built for the floating forces of the United States Government. From Mechanicsburg, during 1943, moved vital parts to replace battle-damaged engines with the Pacific and Atlantic fleets.

The Depot was commissioned October 1, 1942, and by the time of its first anniversary was in full operation. A large staff of Navy personnel, including a sizable detachment of WAVES and a Marine guard, was stationed at the reservation. Most of the officers found living quarters in Harrisburg, while a few secured accommodations in the borough of Mechanicsburg. Civilian help for the Depot was drawn from the same area that supplied labor for the Air Service Command Depot at Middletown and the Army Service Forces Depot at New Cumberland.

Naval Aircraft Supply Depot

Another specialized Naval Depot, for the storage and supply of aircraft parts and equipment, was operated by the Navy Department in Philadelphia. Built on a tract of 128 acres, the installation consisted of fifteen buildings with an aggregate of 3,000,000 square feet of storage space. This depot was placed in commission on July 17, 1943, and was operated with a force of 3,000 civilian employees and a Navy station complement of 250 officers and men.

New Cumberland Army Service Depot

A third great military supply depot within the Harrisburg metropolitan area was the New Cumberland Army Service Depot, formerly known as Marsh Run. This was not a new installation, and, like Middletown, had been operating since the days of World War I. But its growth during the first two years of World War II, culminating in 1943, reflected the sharp contrast between the two conflicts.

This depot was prepared to ship, directly to ports of embarkation, huge quantities of quartermaster stores, ranging from tiny hypodermic syringes to complete, 1,000-bed field hospitals. Uniforms by the hundreds of thousands were processed here for overseas shipment during 1943, and there was a continuous turnover of the immense stocks handled in the long, low warehouses. Twenty-four hours a day the work went on, and by night the New Cumberland Depot resembled a fairly large city, with streets and avenues marked in long lines of twinkling lights far below the motor highway of the Susquehanna Trail.

Operated under the military jurisdiction of the Third Service Command, the depot had a service unit military complement plus hundreds of civilian employees. These workers handled the receiving, storage transfer and shipment of all materials processed here for consignment to domestic as well as foreign stations serviced by the Third Service Command. Depot personnel, military and civilian, prided themselves on the proven ability to have a trainload of quartermaster stores at dockside within hours of requisition. Such rush orders were common during the summer and fall of 1943, when the Mediterranean campaign moved across Sicily and into the Italian mainland.

Camp Reynolds

Along the beautiful valley of the Shenango River, two miles south of Greenville, Mercer County, thousands of American soldiers spent their last few weeks in "The States" during the closing months of 1943.

Camp Reynolds was named for Major General John Fulton Reynolds, native of Lancaster, Pennsylvania, who was killed at the battle of Gettysburg, July 1, 1863 This official designation of the great Pennsylvania encampment was made in September, 1943. Prior to that time, and since the activation of the camp in 1942, the station had been known simply as "Shenango."

This camp was different from others in the State, not only in function but also in construction. Barracks were of the "theater of operations" type and were grouped in battalion units. Troops arrived here from scores of other camps, for final processing before "shipping out." Primarily, Camp Reynolds served as a Personnel Replacement Depot; and the average period of time spent on the station was brief. The duration of the individual soldier's stay depended on his branch of operations and the demand for replacements in that branch. In the interim, the troops were fully prepared to go anywhere. Worn and damaged uniforms and equipment were replaced with new issues, and all other final details were checked and rechecked.

At the lower end of the camp, troops detrained and entrained at "Victory Station," often completing the cycle within a few days. Routine of the processing varied with the type of troop unit, but all of the men were checked through the large station hospital. This hospital compared favorably with the most elaborate civilian establishment, both in size and facilities. Final medical checks were made on all military personnel, and remediable defects in soldiers arriving from other camps were attended to by a specialized staff of Army physicians.

Although Camp Reynolds was merely a temporary home for most of the men who passed through it, adequate recreational facilities had been provided, and the impressive array of service clubs, libraries, gymnasiums, theaters and guest houses would rival those of any post in the country.

Indiantown Gap Military Reservation

The former home of Pennsylvania's famous Twenty-Eighth Division was a busy place during 1943. Although the original members of the Keystone Division were scattered far and wide across the world during this second year at war, its old home training grounds at Indiantown Gap, along the base of Blue Mountain, eighteen miles northeast of Harrisburg, was not idle.

Here, since the Pennsylvanians marched away in the last days of 1941, the Federal Government had completed the building of a vast military encampment. Construction was begun in the fall of 1940, when the Government leased the 17,000 acres of the reservation from the Commonwealth of Pennsylvania for the sum of $1 per year. By early 1943, the camp had become a mountain city of some 1,500 buildings, with a normal capacity of 26,500 officers and men.

Divisions of the Army of the United States arrived at Indiantown Gap from other camps located throughout the nation for periods of intensified, specialized training, preparatory to "action orders." Other non-divisional organizations received here special technical training in Port Battalion work, Transport Corps and allied non-combat service duties.

Infiltration and battle courses provided vital combat training for infantry troops, while Port Battalion and Transport troops labored at loading and unloading dummy "ships" and carrier vehicles. The station complement at the post engaged in the perfection of changes and improvements in the training aids, equipment and facilities set up to "polish" the combat troops, and the men who would keep them supplied at the fighting fronts.

Willow Grove Naval Air Station

Willow Grove, in Montgomery County, just north of the City of Philadelphia, was the site of a $7,000,000 naval installation, opened in November, 1942. Covering 600 acres, the station originally was designed for the primary training of naval pilots and was used for that purpose during the first few months of its existence. Later, the station became a headquarters for specialized training—including the "breaking in" of ferry pilots to the peculiarities of latest fighting planes.

Willow Grove was likewise used as an assembly point for the complete installation of aerial fighting equipment on combat aircraft, delivered there from manufacturers all over the country. From here, fully equipped and ready for action, the planes were ferried to their destined theaters of war. A great part of the ferrying activity was carried on by British pilots of the R. A. F., who here accepted planes under provisions of Lend-Lease and flew them to British bases.

New Cumberland Army Reception Center

Best-known of all Pennsylvania military installations was the United States Army Reception Center at New Cumberland. In operation since March, 1941, by 1943 the "Center" had processed many thousands of Pennsylvania's new soldiers.

Inductees were forwarded to the Reception Center from the various induction stations throughout the State, arriving by the hundreds almost every day. Here they were uniformed and given the first practical indoctrination of Army rules and regulations. For many, New Cumberland was merely an overnight stop before they moved on to specialized training camps for "basic"; others lingered longer, but few remained more than one or two weeks.

A Special Service Unit garrisoned the post and formed the Reception Center *cadre*. Among other functions, there was operated here a school to teach newly-inducted soldiers to read and write. Many of these men had been rejected for service earlier because of illiteracy, but the school established at the Reception Center soon enabled them to overcome this handicap. The teaching staff was composed of officers and non-commissioned officers, most of whom had been school teachers in civilian life.

Another special feature of the New Cumberland post was the weekly radio show "Pennsylvania On Parade," broadcast throughout the State. This show utilized talent among the *cadremen* and inductees at the Reception Center, and was a capsule version of the theatrical production "Pennsylvania On Parade," which originated at the Reception Center and toured theaters in Pennsylvania and surrounding States with an all-star cast of soldier talent.

New Cumberland Reception Center fronted on the Harrisburg-Baltimore-Washington line of the Pennsylvania Railroad and received inductees by rail from all over the State. A special siding and station, built to accommodate long troop trains, paralleled the main line tracks about a mile south of the P. R. R.'s New Cumberland station.

The "Center" itself was a large camp of permanent-type barracks, administration buildings and structures wherein the processing machinery functioned. It contained all the appointments to be found in a regular Army post, plus others of a more specialized nature.

Carlisle Barracks

The oldest military post in Pennsylvania—famous Carlisle Barracks—in 1943 was rounding out the most important chapter in its 188-year-old history.

Established in 1920 as the Army Medical Field Service School, the historic "Barracks" played a dramatic role in preparing Army medical men for the seamier side of World War II. By 1943, in the second year of conflict, graduates of the unique school at Carlisle could be found wherever the United States Army had established contact with the enemy.

To save rather than destroy lives was the keynote of the highly specialized training developed at Carlisle. Officers and officer candidates of the Army Medical Corps here went through a gruelling, intensive course in field medicine, designed to teach them how to save lives on battlefields with a minimum of equipment and under the most unfavorable conditions.

The Medical Field Service School at Carlisle was the first one of its kind anywhere, and the only one in the United States. Evacuation procedures for the removal of wounded men developed here quickly paid dividends on North African, Sicilian, Italian, and Pacific beachheads.

Tobyhanna Air Service Command

Up in Monroe County, at Tobyhanna, the Air Service Command of the United States Army Air Force operated a training camp for Air Force service units. During 1943, these special troops trained under jungle and arctic conditions, learning the varied bag of tricks of the combat quartermasters who keep advanced flying bases supplied with the essentials of aerial warfare.

An important phase of the training had to do with combat convoying of gasoline, lubricants, ammunition, bombs, plane and motor parts. Defense against strafing attack was the prime purpose of this training, and truck crews were thoroughly drilled in this vital routine under simulated attack conditions.

The Hospitals

Pennsylvania was the home of two of the Army's largest general hospitals, both of which were operating at near-capacity by the end of 1943. First to open was Valley Forge General Hospital, at Phoenixville, commissioned on Washington's Birthday, 1943. A month later, on March 26, 1943, the Army dedicated Deshon General Hospital, at Butler.

Valley Forge was built from the ground up, brand-new unit of buildings specially designed for military hospital usage. Deshon Hospital, named for the late Lieutenant Colonel George Durfee Deshon, was built around the $4,000,000 Pennsylvania State Tuberculosis Sanitarium, completed in 1940 but never occupied. Additional buildings created a huge hospital unit centered on the pavilion of the sanitarium. New building later in the year increased the hospital's capacity to more than 1,000.

Both Valley Forge and Deshon Hospitals were of the General type, and both were completely equipped to treat—medically and surgically—the most obscure and difficult cases. Shortly after the North African campaign developed a series of bloody battles, the first wounded men arrived at Valley Forge. Additional wounded were sent to Deshon during that campaign, and a steady stream of invalided casualties began to move into the two hospitals.

As the frequency of cases necessitating specialized rehabilitation increased, head wounds and visual disabilities were channeled to Valley Forge for expert attention, while Deshon began to specialize in auditory disability cases. Both hospitals, however, received military patients suffering with every type of battle wound, nervous or other disabilities.

Besides station complements of officers and enlisted men of the

Medical Corps, each hospital was staffed with a sizable detachment of the Women's Army Corps, plus civilian administrative and clerical personnel.

Air Force Intelligence School

Through 1942 and 1943, hundreds of Air Force officers learned the principles and practices of "G2," or Intelligence, in the buildings of the old Harrisburg Academy, purchased by the Army in June, 1942. The original buildings were supplemented by additional structures, including sleeping quarters for the faculty and students. The average course of instruction for candidates to the Intelligence Section, U. S. A. A. F., covered six to eight weeks. The school was scheduled for transfer to Orlando, Florida, on March 31, 1944.

III. BEHIND THE GUNS

MOBILIZING Pennsylvania's vast industry for wartime service devolved upon two district offices of a great organization—the United States Army Ordnance Department. The activities of this complex organization reached into practically every manufacturing plant, however small, within the Commonwealth.

Following World War I, Army Ordnance was decentralized and organized in districts, thirteen in number, covering the entire nation. Two of the largest of these districts were set up in Pennsylvania, with headquarters at Philadelphia and Pittsburgh, respectively. With the exception of the three counties of Erie, Crawford and Mercer, which fell within the bounds of the Cleveland, Ohio, district, the potential production output of the Keystone State was channeled through these two offices.

The Philadelphia district also covered the lower half of New Jersey, Central and Eastern Maryland, Delaware, Virginia, North Carolina and South Carolina. Pittsburgh, similarly, had jurisdiction over two counties each in Maryland and Ohio, plus the entire State of West Virginia.

The wartime job of an ordnance procurement district is to facilitate production and delivery of ordnance; that is, ammunition, weapons, motor vehicles for the Army, and, in some instances, for the Navy. This material must be produced by the manufacturing plants within the district, despite the fact that 95 per cent of such material is far different from peace time products of those same plants. So different, in fact, that most plants would have to rebuild or drastically revise existing facilities in order to get into ordnance production. Exigencies of sudden war would not permit this.

For years prior to the outbreak of the war in Europe, the ordnance districts were studying plans and preparing a program of integration. When war came, these plans were "activated," or put into effect. The United States began building its defensive reserve in 1938. Immediately, the ordnance districts became of prime importance. During the years they had trained reserve officers in the business of ordnance procurement; likewise, they had trained and supervised the work of civilian inspectors. From 1938 until 1940, the districts steadily accelerated their activities. Scores of reserve officers were called to extended active duty, and civilian personnel increased to a total of several thousands.

In the summer of 1940, both Pennsylvania districts were given authority to place contracts for ordnance material. The experimental period was nearing an end, and each district assumed full responsibility for procuring the huge quantities of material demanded by the federal government.

By 1943 the system was in full swing. So well had it worked that both districts were able to effect considerable reductions in necessary personnel, and by the end of the year were operating efficiently with less than three-quarters of the 1942 maximum staffs.

These manpower-conserving reductions were brought about by the close cooperation of ordnance and manufacturing officials. Increased manufacturing efficiency, requiring less and less supervision; simplification of administrative routines within the ordnance organization, and the doubling up on jobs and processes all contributed to the rapid stabilization of ordnance procurement.

The procurement service of the ordnance districts was not limited to the awarding of contracts, although this was the ultimate function. Before and after contract awards, a staggering amount of work had to be accomplished. This included plant surveys, checks on tools, capacity, labor conditions, transportation facilities, studies of management and methods and general manufacturing "know-how."

Typical procedure in the procurement of any specified article of warfare followed this pattern:

The district Board of Awards, consisting of the Chief of the District Planning Branch, the Chief of the Legal Branch, the Chief of the Labor Branch, and the Director of Purchase, conferred on the proposed contract. All phases of the contract were reviewed, bids compared with prices prevailing for the same item in other districts. The production record of the proposed contractor was thoroughly scanned.

The contract once approved, one of five special Commodity Branches took over. These Commodity Branches, functioning within each district, covered Ammunition, Artillery, Small Arms, Miscellaneous Materials and Tank-Automotive.

Each Commodity Branch consisted of a Chief, an Administrative Unit, a Production Head, an Inspection Chief, a Technical Director, a Controlled Materials Plan Supervisor (formerly Priorities Chief) and a Packaging Chief.

In handling the contract, the Commodity Branch in whose division it fell would enlist the services of a number of Specialist Sections of the district ordnance organization. For example, it could call on the Director of the Production Division and his Gauge Laboratory—where thousands of delicate gauges, necessary to the split-hair accuracy of ordnance machining, were kept, repaired, checked periodically and assigned for use. It could make use of the Conversion Engineering Section, charged with finding substitutions in critical metal shortages, or the Machine Tool Panel, whose duty it was to locate and allocate needed machine tools within the district. The Inspection Director, a technical counsel on inspection problems, could be invoked, as well as the Packaging Section, in attempts to overcome possible "bugs" in the fulfillment of contract.

Actual supervision of the job was handled by one of the district's several Sub-Offices, strategically spotted through the district area. The Philadelphia district, for example, operated eight Sub-Offices, five of them in Pennsylvania. Each of these Sub-Offices was, in turn, a complete operating unit. Two of the Pennsylvania Sub-Offices provided a unique and necessary supplementary function. At York, a large Proof Range ran firing tests on armor, guns, gun mounts and related equipment, and at Chester was operated a huge Tank Depot—where tanks and other combat vehicles were processed, assembled and packaged for water shipment. In Philadelphia proper, the district operated a Mobile Shop Depot, where were assembled, equipped and packaged for shipment the mobile repair shops used in servicing and repairing combat vehicles damaged in action.

But individual contracts for war material seldom were filled in their entirety within any single division of the district, or any single district. On one prime contract, for example, the Philadelphia district placed a total of 1,055 contracts with 284 contractors. These covered 21 States, and required the cooperation of the Ordnance Districts covering those areas. During 1942, the Philadelphia district made awards to 1,005 contractors, involving 7,060 sub-contractors and 58,000 sub-sub-contractors. By February, 1943, the district's "contracts in force" totaled 1,230 prime contracts covering 36,000 sub-contracts and engaging 3,290 manufacturing units.

Philadelphia was the larger of the two Pennsylvania districts. It produced a greater diversity of ordnance material than any of the other twelve districts in the United States. Its contracts covered the production of tanks, combat vehicles, mobile shops, guns, gun carriages, bombs, parachutes, flares, fuzes, optical instruments, explosives, armor and scores of other items necessary to military action.

Activities of the Pittsburgh district were confined, for the most part, to the forging and machining of steel, and to the stamping of metal, aluminum and copper parts. Ammunition and guns formed the largest percentage of the district's production procurement, although optical glass and other elements for the manufacture of precision optical instruments accounted for another sizeable percentage. The same difficulties had to be surmounted, the same complex routines of contract, sub-contract and sub-sub-contract, the same administrative machinery operated here as in Philadelphia. The Pittsburgh district also supervised an important link in the vital transportation system utilized by all Eastern districts, and its Transportation Division was correspondingly active in keeping the steady flow of war materials—finished or in various stages of manufacture—moving through the "Pittsburgh rail traffic bottleneck."

Both districts worked in perfect coordination with each other and with their eleven sister-districts in bringing American production genius to full and rapid fruition. The complete story of Pennsylvania's ordnance districts would fill several dozen volumes with factual and statistical information; after the war, this story will be of inestimable value in charting the way to more efficient production of peacetime commodities. For future generations who may find themselves again faced with war's grim problems it will provide a detailed lesson in experience, and will enable them to by-pass many of the original "nuts" tackled and solved by our industrialists and our Army Ordnance Department.

Frankford Arsenal

A major task of the Ordnance Department organization in Pennsylvania was the supervision of two great arsenals. One of these, Frankford Arsenal, located in the city of Philadelphia, was rounding out 128 years of history; the other, huge, sprawling Letterkenny Ordnance Depot, at Chambersburg, Pennsylvania, was strictly a "war baby."

Frankford was a "true" Arsenal, while Letterkenny, designated as an Ordnance Depot, really was an ammunition dump. The former engaged in wholesale manufacture of munitions, weapons and instruments of war, while the latter served as a collection and distribution point for finished material. Letterkenny also assembled component parts of ammunition, lethal weapons and mobile equipment and processed it for shipment direct to the fighting fronts, via Eastern ports of embarkation under the First, Second and Third Service Commands.

In physical appearance, as well as in function, the two arsenals were totally dissimilar.

Frankford Arsenal was crowded into a 100-acre reservation, surrounding the old "post," whose stone buildings date back to 1817. The Arsenal reservation was a hodge-podge of factory buildings and warehouses—huge, rambling structures, whose construction dates marked every phase in America's military history. The latest buildings were modern in design and equipment and acres of them were built during the period from 1940 to 1943. On the site of the post's former baseball diamond, an ultra-modern building housed the Arsenal Optical Shop, where skilled workers ground and polished elements to be used by the Instrument Division in the manufacture of a variety of delicate "lens assemblies" for intricate optical instruments.

It should be noted here that Frankford Arsenal was responsible for the training of the great majority of the more than 14,000 skilled optical workers now employed in the nation. When war began in Europe there were only about 200 American workers capable of making precise optical instruments. Both men and women were rapidly trained in this highly-skilled craft, and in 1943 Frankford Arsenal was producing all types of complicated fire control instruments, gunsights, rangefinders and other optical battle equipment in larger quantity and better quality than those of any other nation.

An important phase of this work was the study and analysis of captured enemy equipment. In 1941 only 26 experts were engaged in the study of competitive specimens; by 1943 more than 1,000 men were handling this job. In the production of new equipment, engineers made use of the most modern laboratory checking facilities, including Physical Testing, Spectrographic, Mechanical Engineering and Experimental, and Ballistics Laboratories. New developments in the miraculous science of electronics sprung from the ballistic testing of small arms ammunition at Frankford.

The Small Arms Ammunition Division was the largest and oldest unit of the Arsenal. Most of the major improvements in military ammunition originated here. During 1943, nearly twenty regular types of small arms ammunition were in steady production, and all special types ordered by the War Department were made at Frankford. The elaborate shop facilities of this manufacturing unit may be explained by the fact that one type of ammunition required thirteen different materials and a total of 105 manufacturing operations. Another type required ten separate pieces. Thus, the production of one million rounds of this type meant the manufacture of ten million pieces, each of which had to fit perfectly into the whole assembly.

The Artillery Cartridge Case Shop was the largest single building in the Arsenal. Here were manufactured brass artillery cartridge cases from 37 millimeter to the largest case used in artillery warfare. Equipment included presses with capacities ranging from 25 to 3300 tons. Among other unique developments originating in this shop was the resizing process for fired cartridge cases returned from battlefronts and training camps. The process has saved an immense amount of time and material in the production of artillery ammunition. Here also was pioneered the manufacture of steel cartridge cases, ranging from 37 millimeter to 90 millimeter.

Close by the Cartridge Case Shop was the Shell Shop, where both heavy and medium shells were completed, ready for the loaders. These high explosive shell bodies entered the production lines as rough forgings, emerged after 25 distinct operations as finished shell. In April, 1943, nearly 600 employees, including 44 women, were working on these two lines.

In the Heat Treat Shop, electric induction furnaces and other specialized equipment enabled workers to "nose" a projectile every 25 seconds. Total time elapsed for each projectile in the heat treating process was five hours, 19 minutes and 19 seconds. The process was continuous, 24 hours a day, seven days a week. The Arsenal employed a force of 170 male workers on these operations.

Total working force in the Artillery Ammunition Department at Frankford Arsenal in April, 1943, was 5,209. Of this total, 53 per cent were women and 47 per cent men.

Frankford Arsenal, with its expert engineers and craftsmen of all types, served as a focal point for the solution of manufacturing problems of other production plants within the Ordnance District area and throughout the country. During the early days of the war, its function as a "pilot" plant was of vital importance in America's armament program. Later, by summer of 1943, most of the immediate problems had been worked out, new processes developed and manufacturers fully instructed in the specialized task of producing munitions. As a result, the Arsenal was enabled to effect a considerable reduction in its operating personnel. Peak employment figures were reached in April, 1943, with a weekly payroll of more than 19,000 men and women.

Letterkenny Ordnance Depot

The largest of all military installations in the Commonwealth of Pennsylvania—in point of area—Letterkenny Ordnance Depot occupied an entire township and half a mountain a few miles northwest of Chambersburg, Franklin County. It began with the acquisition, by purchase or condemnation proceedings, of approximately 22,000 acres by the War Department following a directive issued by the Secretary of War on December 18, 1941. The Corps of Engineers, United States Army, supervised construction. Before the end of January, 1942, office equipment and telephone switchboards had been installed. Within another week contractors began work on railway lines and highways within the reservation, totaling 80 miles and costing approximately $3,000,000. Construction continued at a rapid pace throughout 1942 and into the early months of 1943.

By the end of September, 1942, the first freight carload of small arms was stored in a Depot warehouse. Two months later, the permanent post headquarters was publicly dedicated and work at the Depot got into full swing. First test of the new installation's handling system came on Armistice Day, 1942, when, during a 24-hour period, 1,236 two-thousand-pound bombs were sent to the Boston Port of Embarkation.

Midsummer, 1943, found Letterkenny operating at near-peak capacity. By this time, storage space (igloos and magazines) for more than 7,700 carloads of ammunition had been built; the area now contained 14,000 fenced and closely-guarded acres, crossed by 50 miles of railway tracks, sidings, spurs and switches, and 160 miles of hard-surfaced roadways. Warehouses in the Combat Area and Ordnance General Supplies numbered 36, with a total floor space of 2,526,800 square feet.

An operating force of civilian workers fluctuated between 4,000 and 5,000, all painstakingly trained in safety measures. Elaborate safeguards held to a minimum the danger of accidental fire or explosion, with the attendant possibility of Franklin County literally being "blown off the map" of Pennsylvania.

Main storage facilities were provided by 800 igloos, constructed of reinforced concrete banked with an earth fill and grounded to insure protection from atmospheric electrical discharges. Storage was methodical and precise. Bombs and shells were racked on wooden "dunnage," and other ammunition was tiered on wooden pallets. Thorough ventilation was provided, and igloos were equipped with safety doors. Each igloo had a capacity of approximately 500 tons of explosives.

Carload lots of ammunition, received from manufacturers and arsenals, arrived at Letterkenny every day. The cars were handled in the Depot's classification yards, shunted into the proper area and immediately unloaded. Fork-lift trucks, battery-operated for safety reasons, were used in the transfer of all live ammunition. The process was reversed when shipments of ammunition left the Depot for ports of embarkation.

Surface warehouses and magazines housed the huge quantities of small arms ammunition, and other warehouses were used to store weapons, rubber equipment for combat vehicles, replacement parts and tools. Near the warehouses, there was a large "park" of combat vehicles—half-tracks, command cars, scout cars, jeeps, etc.—and a similar "park" of tanks. One function of the Depot was the modification and adapting of older models to current needs of the fighting forces. Tanks were stripped and refurnished, armament was remounted and other changes made.

Packaging and shipping occupied a large force of workers at the Depot, and special techniques for all types of material had been developed. Trained crews loaded requisition consignments, utilizing prefabricated boxes, frames and "dunnage" of wood and metal, 20 per cent of which had been salvaged from the packing furniture of incoming material. Thousands of board feet of lumber passed through the carpenter shop each day.

The vast expanse of Letterkenny contained many evidences of the former, peacetime farming township. Here and there ancient farmhouses and outbuildings dotted the reservation. Some had been used as headquarters for field operations in the various areas, but for the most part they remained as they had been left by the dispossessed inhabitants.

Pennsylvania Ordnance Works

More than 75 per cent of all bombs and shells are loaded with trinitrotoluene, commonly abbreviated as T.N.T. During 1943, the home of T.N.T. was a gigantic plant operated by the United States Rubber Company for the Army Ordnance Department in the White Deer Valley of Pennsylvania, ten miles south of Williamsport.

This plant was known as the Pennsylvania Ordnance Works, and was located in the center of a 9,000 acre tract—designated as a military reservation and completely enclosed by security fencing and elevated sentry boxes. Within the reservation, containing both manufacturing units and storage facilities, a force of 590 auxiliary military police maintained a 24-hour guard patrol.

The entire installation was supervised by a group of seven Army Ordnance officers, plus officials of the United States Rubber Company. At peak production, the weekly payroll of the plant totaled one million dollars.

In April, 1942, construction work was started in the White Deer Valley; by March, 1943, two million pounds of T.N.T. had been produced in the new plant. Production rates rose sharply thereafter, and by the end of the year 68 million pounds had been turned out. So well had the job been done that the plant was scheduled for a complete shutdown early in 1944, when the reservation would be converted into an ammunition depot.

The production of T.N.T. was a complicated process, but, despite popular notions, the hazards of explosion were practically non-existent. The real hazard of manufacture was found in the toxic, or poisoning, qualities of trinitrotoluene. For this reason, elaborate precautions were taken to safeguard the health of the workers.

Workers exposed to the effects of the product, either in finished form or in process of manufacture, were required to change clothes and shower each time they arrived for or departed from work. A completely equipped station hospital was ready to deal with any and all accidents or injuries, and a thoroughly-trained fire department kept the fire hazard at a minimum. Extensive laboratories checked constantly on all elements and phases of manufacture, further reducing risks and dangers.

Finished T.N.T. was packed in fifty-pound boxes and stored in "igloo" magazines, similar to the ones in use at Letterkenny Ordnance Depot. From here it was shipped out to distribution points for eventual disposition to shell-loading plants.

The production "lines" at Pennsylvania Ordnance Works were a curious conglomeration of small frame buildings, connected by a bewildering network of pipes and conduits—giving the net effect of a combination chicken farm and oil refinery. All this was hidden from prying eyes and possible saboteurs by the vast fenced-in area surrounding the manufacturing units.

Other Ordnance Work

Besides the Pennsylvania Ordnance Works, special ordnance manufactories in the Commonwealth were operated at Meadville and at Danville, both under the immediate supervision of the Army Ordnance Department. The former of these plants, known as Keystone Ordnance Works, had completed its required task by the end of 1943, and, like the Pennsylvania Ordnance Works, was ready for a shutdown early in 1944. The Danville plant, otherwise known as "Cherokee Ordnance Works," was in full operation by the end of 1943, producing a highly-secret item of ordnance.

Philadelphia Quartermaster Depot

Three million square feet of floor space, contained in a reservation of approximately 100 acres, housed the Philadelphia Quartermaster Depot, where 15,000 employees worked around the clock to provide uniforms and articles of personal equipment for America's wartime Army. This Depot had functioned for 143 years, clothing American soldiers for every one of the nation's wars since the Revolution. It was a unique establishment, for there was not another one like it in the country.

Briefly, the Philadelphia Quartermaster Depot served as a switchyard between the Ground and Air Forces of the Army, and the nationwide network of mills, managers, workingmen or women, farmers and ranchers. All of its activities were governed by the policies of the Quartermaster General and the Headquarters Services of Supply. Everything the Army needed, in the way of clothing and special individual equipment, was procured or manufactured by the Depot at Philadelphia. In one year, the Depot called upon the textile industry to furnish enough cloth to reach ten times around the earth at the equator. This huge order affected more than 2,000,000 cotton growers, 1,200 cotton mills and thousands of workers.

The Philadelphia Quartermaster Depot not only procured and manufactured thousands of products, but its Research Division developed the patterns for new clothing and textile equipment for mountain, desert and arctic warfare; for battle decorations; for new packing materials to conserve shipboard space and for new products to conserve vital strategic materials.

One of the most painstaking tasks at the Depot was the inspection of all materials manufactured for Army service. The active inspection force consisted of well over 3,000 men and women, each of whom had received specialized training. This force was divided into three groups: Depot Inspection, Field Inspection and Laboratory Inspection. Field inspectors were stationed in the plants of contracting manufacturers, and made continuous tests of materials in process. The keynote of all inspection was absolute conformity to specifications outlined by the Government—even down to the quality of the most minute raw material.

Because the Philadelphia Depot bought not only the finished product, but also the raw materials and everything that went into particular items, it was able to maintain a close control on quality. Thus, the Depot did not merely buy a soldier's uniform, ready-to-wear. It bought material, buttons, thread, padding and everything else that went into that uniform—including the time and effort of the manufacturer—and rigidly checked each step in the process of fabrication, from the selection of cotton fibers to the final pressing and packing.

In this same manner, the Depot purchased over 2,000 different items of textile products. Specialization was carried so far that there was one contracting officer who did nothing but purchase materials for women's clothing— G.I. for the WAC and the Army Nurse Corps.

The Depot also included a great Manufacturing Division of its own.

Here were operated factories for the production of coats, flags and jackets; the sponging plant where most of the woolen and worsted cloth was shrunk before distribution to manufacturers. Primarily, the Manufacturing Division served as an emergency production unit and as a yardstick of costs.

Signal Corps and Marine Depot

Philadelphia also was the home of two other great military supply depots, one serving the Signal Corps, U. S. Army, and the other keeping material flowing to the fighting Marines. Each depot handled a wide range of combat and service supplies for its respective command, and was staffed with both military and civilian personnel.

The Signal Corps Depot was the largest and most important such depot in the country, employing more than 2,000 workers to handle the procurement, storage, issuing and repair of Signal Corps equipment. It was established as early as October, 1940, and throughout the two years of war achieved a remarkable record of efficiency.

IV. SELECTING SOLDIERS

SELECTIVE Service faced the severest crisis of its history in 1943, but it came safely through. Three different administrators shared the credit for this accomplishment. On April 5, Lt. Colonel Benjamin F. Evans, of Wilkes-Barré, who had been acting director since November 30, 1941, was transferred to other duties at National Headquarters in Washington. Lt. Colonel George H. Hafer, of Harrisburg, then served as acting director until August 1, when Colonel Richard K. Mellon, of Pittsburgh, became State director. Colonel Mellon on August 30 appointed Colonel Hafer and Lt. Colonel John McI. Smith, of Linglestown, deputy directors. Branch offices of the State Headquarters were opened in Philadelphia and Pittsburgh during the year to assist in the administration of Selective Service in these areas. All over the State seven thousand unpaid volunteers continued the loyal service they had begun in 1940, with a determination to carry out their thankless task.

The problem which confronted them was meeting military manpower needs with a minimum interference with war production and family life. Hitherto, draft boards had been calling only single men; a few husbands had been inducted in 1942, but most of these were men who had married when their induction was imminent and were consequently considered as single. Although 1943 began with a new addition to the manpower pool—the boys of eighteen and nineteen who were drafted for the first time in January—the year had gone only two months before local boards generally found it necessary to call married men.

Since there were still many single persons deferred because of their jobs, the boards were now required to choose between deferments for occupation and for dependency. That occupation was to become the determining factor was emphasized early in February when the War Manpower Commission suddenly ordered all deferments ended for any draft eligible, regardless of the number of his dependents, who was engaged in any of 29 occupations or 36 kinds of businesses, which were considered non-essential, such as bartenders and busboys. While the primary purpose of this order was to urge men into war work rather than into the army, it served as a warning that dependency would soon be eliminated as a factor in the draft.

A further change came in April when the Class III dependency deferments were reshuffled. All childless married men were ordered into other classifications, 3-A was reserved for fathers, and 3-B, which had included married men in essential industry, was abolished. A new class, 3-D, was created for cases where induction would create extreme hardship for dependents. A clarification of the definition of "father" temporarily deferred a few men. Some draft boards had previously been taking men who married when "induction was imminent," even when they were pre-Pearl Harbor fathers, but these men were now definitely placed in the father class.

This new emphasis on occupational deferment made the draft boards' work more difficult. The number of dependents a man had could be determined from his questionnaire; whether or not he was an essential worker was a question to which not even experts could give an unqualified answer. The boards had a list of a thousand positions considered essential. When a man in one of these jobs came up for induction, his board had to decide whether his work was vital to his community. All agricultural workers were deferred if they were doing a specified amount of farm labor; the advice of the county agricultural war boards was usually followed in such cases. Draft officials had a difficult problem in making these decisions. They were liable to criticism for deferring a man whom some one else thought inessential or for inducting an employee a war plant considered necessary. In one case a deferment resulted in a strike by miners who disapproved of it. Draft boards did their work faithfully and well, nevertheless. Only two persons out of every one hundred classified appealed from their decisions, and in five out of every eight appeals the local board was upheld.

Manning Tables

Some of the burden of making these decisions was taken off the shoulders of the draft boards by the institution of the Manning Table and Replacement Schedule Plan, which by the end of the year was in effect in virtually all the larger war plants in the State. Under this plan war plants furnished to the State Director a list of all employees who were subject to call for military service and specified the month in which each man would be released. Trained occupational specialists under the direct supervision of the State Director analyzed these Replacement Schedules to determine whether the rate of release was too fast or too slow. In general, industry was expected to give up about ten per cent of its draft eligibles each month, although the hard-pressed railroads and coal mines were allowed a slower rate.

War plant heads gave splendid cooperation to the plan. Accepting it as an opportunity to release men in an orderly way without breaking down production schedules, they started training programs to prepare women and men who were over-age or physically unfit to take the places of those who were called to service. The draft boards did not at first receive the plan with equal enthusiasm. They suspected some workers might be given special treatment in the replacement schedules, which they had not seen, and felt that they were being deprived of their right to determine replacements. State Headquarters therefore held regional meetings with local boards throughout the State to explain the plan. They were assured that the schedules had all been carefully checked, and were promised an opportunity to see them. Furthermore, they were told, the schedules were only advisory, and not binding on them. As a result of these meetings, the boards were persuaded that the new plan would aid them in their work.

Draft boards also received assistance in determining deferments from the United States Employment Service, which informed them whether a war worker could be replaced. A directive in September brought closer cooperation between the two agencies by requesting the boards to refer any registrant engaged in any of 149 critical occupations to the USES when they believed he was not entitled to deferment, and to postpone his induction for thirty days. The Employment Service office would then decide whether the man had the critical skills needed, and was using them in a war job. If he was not engaged in war work, he was referred to another employer, who had ten days to request his deferment.

Calling Up Fathers

The crisis came, however, when military and production needs finally caused the induction of fathers. When the War Manpower Commission announced that fathers would be drafted beginning October 1, a storm of protest swept Pennsylvania and the nation. To the million soldier-fathers already in the service, the issue seemed academic, but the public complaint had its background in stories that war plants were hoarding unneeded workers, in rumors that the Army was frittering away its manpower on unessential duties, in irritation at the shifting policies of the War Manpower Commission. Pennsylvanians were willing to send their fathers off to fight if it was necessary; they were only expressing their feelings over the handling of the manpower problem.

The protest resulted in Congressional legislation regulating the father-draft, which actually made little change except for abolishing the list of non-deferrable occupations, and increasing dependency allotments to more realistic levels. State Headquarters eased the burden in Pennsylvania by taking a census of all non-father draft eligibles in the State and setting quotas so that all these would be taken as far as possible before fathers would be called. For the first month local boards were instructed to send no more than three fathers, even if their quotas went unfilled, and in November and December they were told to fill no more than a fixed percentage of their quota with fathers.

With the pressure of manpower needs rising, new steps were taken to reduce draft delinquency. Effective November 1, all delinquents were called up for immediate induction, and their names released to the press. Delinquency had been insignificant, however; up to that time, Selective Service reported only 2,156 cases had been turned over to United States district attorneys for prosecution, and many of these had been dropped. The most publicized cases were the battle of the Hedgerow Theater for the deferment of its actors on the grounds that they were doing work of national importance, and the legal contest put up by a Philadelphia father of twins, which ended in a five-year jail sentence.

Religious Scruples

Most delinquents, however, were conscientious objectors, whose religion prevented them from complying with the draft law. Pennsylvania had more COs than any other state—about one-seventh of the total. This was only natural, since all three of the so-called "Historic Peace Churches," the Friends (Quakers), Mennonites, and Brethren (Dunkers), had originally settled in Pennsylvania, where the very first law to be enacted was a guarantee of religious freedom. For the same reason, Pennsylvanians took an important part in liberalizing the provisions of the Selective Service act concerning conscientious objectors. The only concession in the original bill was that members of the Historic Peace Churches might be permitted non-combat service. As a result of testimony by church leaders, the bill was modified to place conscience on an individual basis rather than on membership in a Peace Church and to allow "work of national importance under civilian direction" as an alternative for those who objected to non-combat service.

Under the provisions of the act, COs who registered as willing to perform non-combat service were inducted in the regular routine. Apart from the fact that they were assigned to service in the Medical Corps and were not required to use weapons, they were treated the same as any other soldier. On the other hand were the COs who preferred prison to any cooperation with Selective Service. Most of these were Jehovah's Witnesses, who claimed exemption from the draft on the ground that every member was a minister. One notable instance was a young Philadelphia Quaker who went to jail for a second term rather than register for the draft.

Occupying the middle ground were the COs who were willing to perform work of national importance. To set up this program the Peace Churches, in cooperation with other religious groups, formed the National Service Board for Religious Objectors, with Paul Comly French, a Germantown Quaker, as executive secretary. After conference with government officials it was decided that the work projects would be financed primarily by the Peace Churches. Camps would be set up to do such work as forestry and soil conservation. The men would receive no pay, and the cost of their maintenance would be assumed by the churches, with the men themselves contributing wherever possible. The government would supply only basic equipment, such as housing and kitchen ranges, and provide direction for work projects. Regulations regarding camp life and furloughs were to be on the same basis as the Army.

"Work of National Importance"

Two Civilian Public Service Camps were opened in Pennsylvania in 1941 as part of this program. One at Kane, under the administration of the Brethren Service Committee, has worked on forest service projects, including building trails and roads, planting trees and landscaping, and restocking streams. To this camp 458 men had been assigned, and 173 men were still there on January 31, 1944. Another camp at Wells Tannery, under the Mennonite Central Committee, worked for the U. S. Soil Conservation Service, digging drainage ditches and building fences and dams, and for the Pennsylvania Turnpike Commission, landscaping and grading banks. It had been assigned 334 men, of whom 154 remained on January 31, 1944. A third camp at Howard worked in the Howard Tree Nursery for the Soil Conservation Service until it was closed May 1, 1943, after eleven months of operation.

Beginning in 1942, the Civilian Public Service program was broadened to include projects other than forestry and soil conservation. In Pennsylvania projects were set up in the State mental hospitals in Philadelphia, Warren, Norristown, Harrisburg, Allentown, and Wernersville, and in the Pennhurst State Training School in Spring City. A total of 324 men were furnishing badly-needed assistance to these under-staffed institutions in January, 1944. Sixty-one men with farm experience relieved the agricultural labor shortage by working on dairy farms in Lancaster, York, Allegheny, and Susquehanna Counties, and another 41 were used as dairy herd testers for Dairy Herd Improvement Associations. In addition, 32 men were working in the Philadelphia office of the American Friends Service Committee and the Akron office of the Mennonite Central Committee.

Of the total of 785 men working in Civilian Public Service in the State, few were Pennsylvanians, since Selective Service refused to permit a CPS assignee to be sent to a camp near his home. The 1,021 COs from Pennsylvania were in large part doing similar work in other states. None of them were receiving any pay for their work, and no allotments went to any of their dependents. The path that they had chosen was not an easy one. Some complained that their abilities were wasted in planting trees. A few went to prison in protest against the CPS system; others left to join the army. Most, however, held firmly to the course which their consciences had charted for them.

The Unfit

Some attention was also paid to the 4-F's, the mentally, morally, and physically unfit. The schools undertook a program to educate the illiterate, and special draft boards were set up in the State prisons to release prisoners who had been rehabilitated enough to make good soldiers, but there was no program to remedy physical defects. A new classification, 1-A-L, served to make life easier for those who had such defects as to place them in the limited service class. Under the previous system, they had learned their classification on their first trip to the induction station. Then they were accepted for service until the day's quota was filled; the rest were sent home to return to the induction station month after month until they were finally accepted. Under the new plan they were placed in a special classification and were sent back for induction only once.

Little could be done for the unfortunate social position of the great body of the 4-F's. Many of them looking sturdily healthy, some even professional athletes, they were the butt of criticism from neighbors who wondered, and sometimes asked audibly, why they were not in the army. They looked forward unhappily to a post-war world dominated by the largest veterans' organizations the country had ever known. They were willing, even anxious, to enter military service, but the Army, which had jobs for the WACs, could find no use for the 4-F's.

The Road Back

During 1943 Selective Service started reversing its processes to return discharged soldiers to civil life. Each of the State's 422 draft boards had a re-employment committeeman, whose duty was to see that every returning soldier found a job. If the discharged service man returned to the position he had left, there was no problem. In many instances, however, his former job no longer existed, he had disabilities which prevented him from handling it, or he wanted to take up some other kind of work. In any of these cases the committeeman became his personal representative to secure him re-employment.

Some of these agencies already had their programs in operation. The Veterans' Administration was granting $80 a month, with extra allowances for dependents, to ex-soldiers who needed vocational rehabilitation. Training for these men was provided through the cooperation of the State Department of Public Instruction. The State Council for the Blind extended its services to Valley Forge Hospital, the Army's East Coast hospital for sightless veterans. It provided its "talking book" machines and arranged to teach the soldiers handicrafts, braille, and the use of the typewriter.

For those who wished to take up farming, the Farm Security Administration stood ready to lend them the necessary money. Jobs in industry were provided by the United States Employment Service, which opened branch offices at the Army and Navy Hospitals in the Philadelphia area. The Employment Service's policy was to find for ex-servicemen the best jobs possible, with emphasis on those with prospects of future security. To tide them over the period of idleness, the State offered unemployment insurance for sixteen weeks to those who had worked long enough in civilian life to be entitled to it.

The re-employment problem offered little difficulty in 1943. Only about 28,000 discharged soldiers had returned to Pennsylvania, and most of these were quickly absorbed into war production. A Veterans' Administration representative estimated that eighty out of every hundred were finding jobs, while three did not need to work. The remaining seventeen were unfit to work without further training. For them the War Department arranged to eliminate the heart-breaking delays between discharge and the receipt of the disability pension.

V. OUR CIVILIAN DEFENDERS

THE State Council of Defense, general staff for Pennsylvania's vast civilian army, began 1943 with a new membership. The incoming Governor, Major General Edward Martin, replaced Arthur H. James as chairman of the council on January 19, and five members took office as a result of changes brought about by the 1942 elections. Another shift occurred on February 1, when Dr. A. C. Marts resigned as executive director in order to accept a commission as head of the Coast Guard's Port Security organization. The council called upon Dr. Ralph Cooper Hutchison, president of Washington and Jefferson College, to fill the vacancy, and named A. Boyd Hamilton, secretary of the council, who had been acting as director, to be his deputy.

To improve the efficiency of the defense administration, the council's multiplying functions were reorganized in May. Colonel Lynn Adams, veteran retired head of the State Police, was placed in charge of the Civilian Protective Services, including all activities designed to defend against air raids, sabotage or disaster. The functions intended to further the war effort were grouped as Civilian War Services, with Mrs. Worthington Scranton at their head. The 1,200 local defense councils were urged to follow the same plan of organization.

Despite loss of personnel to the armed forces and a growing public belief that air raids were no longer to be expected, the Protective Services were still at peak strength of 630,000 volunteers at the end of 1943. One-third of these, or 219,000, were air raid wardens, 67,000 auxiliary firemen, 63,000 auxiliary police. This force was kept on the alert by sixteen drills during the year. The most interesting of these was the test on January 14 of Pennsylvania's invasion defenses. The whole protective force of the State, including the Army, the State Guard, Civilian Defense and the Civil Air Patrol, was called out in an elaborate maneuver, which demonstrated that Pennsylvania was ready to repel any enemy attack. The drill on April 14 also gained historic significance by blacking out a session of the legislature.

The Sound of the Sirens

Air raid defenses were thrown into temporary confusion by a new set of signals ordered by the Army in February. Under the previous system Civilian Defense leaders had been warned in advance by telephone, and the public heard only the "red" alert, followed by the "white" all-clear. The sustained siren blast which had been the all-clear was transformed into a "blue" signal, and the audible all-clear was replaced by an announcement over the radio. A visible all-clear was also given in cities at night by turning on the street-lights. The blue, meaning that enemy planes were approaching, required a blackout in homes and business places, but did not compel traffic to stop moving. The red signal warned that enemy planes were overhead, and meant that all lighting must be extinguished, traffic halt, and pedestrians take shelter.

Although these instructions had seemed perfectly clear on paper, in practice the public, and even the air raid wardens, had trouble in following them. There was difficulty in remembering what was permitted after each signal, and the radio all-clear left the wardens in the dark as to the end of the black-out. Practice gradually brought familiarity with the regulations, and a 15-second siren blast was adopted as an audible signal of the end of the drill.

After three drills in September, the most ever held in one month, the State Council of Defense announced on October 14 that the public had now been sufficiently tested, and that until further notice the Council would let the Army call the drills. Although the real purpose of this move was to convince the public that blackouts were not an unnecessary nuisance but were desired by the War Department, protests arose from local defense councils who feared that without drills their defense organization would disintegrate. The Army, however, called practices in November and December and the State Council ordered monthly mobilizations to maintain the protective services.

One reason some people thought the danger from enemy attack was over was the Army's action in regard to the Aircraft Warning Service. This organization, made up of volunteers spotting planes for the Air Force's Fighter Command, was under the direct control of the War Department, unlike the other civilian defense agencies. In July the observation posts west of Harrisburg were closed down, and on October 4 the entire service went on a skeleton basis, working only a few hours a week to preserve the organization. The announced reason for this change was a desire to release manpower for other duties. It was probable also that the Army had so improved its own defenses as to make it unlikely that an enemy plane could reach American soil undetected, and that the need for the Aircraft Warning Service had therefore passed.

Civilian Disasters

Even if the military successes of 1943 did make it seem less and less probable that the civilian defense organization would be called upon to function in an air raid, the Citizens Defense Corps demonstrated that it was of unexpected value when other disasters occurred. Not only did the training of individual workers prove valuable, but the organization itself showed its usefulness. The control centers were especially helpful in furnishing a system of communications to summon aid and dispatch equipment and personnel. On a score of occasions units of the Citizens Defense Corps were called upon to render assistance in disasters. The greatest tragedy was the wreck of the Congressional Limited in Philadelphia on Labor Day, which cost eighty lives. Almost 7,500 air raid wardens and auxiliary police turned out to assist in removing the wreckage and caring for the injured. On October 24 Easton's well trained rescue squad, as well as other defense aides, rescued four victims from the debris after the explosion of the gas works in that city. On other occasions members of the Citizens Defense Corps went into action to repair damage after a tornado in Oil City, to remove food poisoning victims to a hospital in Erie, to check a forest fire near Bradford, to find a lost child at Butler, to rescue trapped miners at Carnegie, to patrol flooded areas in Pittsburgh, and to recapture a carload of pigs liberated by a freight wreck at Chester. In Philadelphia air raid wardens and auxiliary police have volunteered to assist the city's police force by patrolling the streets and escorting women war workers home at night.

All these activities brought a growing recognition that the Civilian Defense organization might be as useful in time of peace as in war. Governor Martin himself declared that it had become a State-wide safety agency, guarding production, life and property and recommended that many phases of the program be continued after the war. Although there were several problems still to be decided, it seemed likely that a modified disaster organization would remain after the arrival of peace.

Two new Protective Services, which offered post-war possibilities, were developed during the year. The Fire Guards, operating in connection with the air raid wardens, were given instructions in fighting and preventing fires. Stationed in every block, they were equipped to put out small fires before they got out of control. They were also trained to eliminate hazards from their neighborhoods. The hospitals of the State were also mobilized for disaster by the State Council of Defense. Sixty-one were approved as "base hospitals," seventy-seven as "casualty hospitals." Together these institutions could handle 18,000 patients. For emergencies, 6,000 hospital cots and mattresses received from the Federal Government were stored in a central warehouse ready to be shipped where needed. Reciprocal arrangements were made with neighboring states for the exchange of plasma and other medical supplies. In addition, Pennsylvania already had more than 12,000 units of blood plasma ready in its own hospitals.

Serving for War

The War Service functions of Civilian Defense during 1943 passed the protective side in number of volunteers enrolled, with nearly a million Pennsylvanians engaged in furthering the war effort. One of the most important War Services was conducted by the Victory Garden and Victory Food Conservation Committee, which was charged with the duty of increasing the war-time food supply. Spurred on by rationing, an estimated 1,400,000 Victory Gardeners, twice as many as in 1942, blistered their hands and battled beetles through the summer to produce more than a half million tons of vegetables. Many learned for the first time that no cabbage has so fine a flavor as a head from one's own garden. The Victory Garden Committee also instructed novice canners on the proper method of preserving food, and organized community centers to make use of pressure canners. Kitchen shelves all over Pennsylvania bent under the weight of well filled jars in the fall of 1943; even city apartment dwellers crowded canned fruits and vegetables into every available nook and cranny.

The Consumer Interest Committee, although it found most of its activities taken over by the OPA in 1943, was able to develop other useful functions. It provided a course in home mechanics for women who were compelled to do their own repair work. A manual on a course of study for consumers was written and distributed to the schools. The committee arranged to ask housewives in a dozen Pennsylvania cities to pledge themselves to obey price ceilings, and made a survey of black markets in the State. It also set up an organization to handle reports of food shortages in any community to the Food Distribution Administration; the FDA then persuaded wholesalers to send more food into that area.

A question of policy in the protection of consumer interests brought a disagreement between the State Council of Defense and the OPA. In reply to the OPA's request that local councils continue to make nominations for ration boards and price panels, the State Council laid down three conditions under which they might do so: (1) The local councils should have exclusive power to nominate; (2) no persons should be named as representatives of any special groups; (3) appointees should not be used for "snooper" work. When the OPA refused to accept these terms, the State Council directed the local groups to relinquish responsibility for making nominations.

Another War Service, which gained in importance during 1943, as more and more mothers left their kitchens for the factories, was the Committee on the Day Care of Children, under the direction of Mrs. Benjamin Ludlow. This group aided in the establishment of day nurseries where working mothers could place their children. State funds up to $1,000 for child care equipment were authorized for communities without Federal or local funds to set up child care centers. Lancaster and Meadville were the first cities to take advantage of these funds. By late 1943 twenty-three nurseries had been established in communities ranging in size from State College to Philadelphia, and seven hundred children were being given daily care. To assist in starting other centers a consultant was appointed in each of three regions in Pennsylvania.

The Nutrition Committee, under the direction of Dr. Pauline Beery Mack, worked in cooperation with all these other War Services. It advised the Child Care Committee, for example, on the proper feeding of children at the centers. It assisted schools in planning school lunches. The most important function of the Nutrition Committee was the education of the public on proper nutritional standards. The need for this education was demonstrated by a series of tests on war workers and other civilians to determine the effect of their diet on their health.

The job of bringing the rules of good eating into every Pennsylvania home was done by the Block Leaders. These Block Leaders were the public information agents of Civilian Defense and government agencies. When any new campaign was to be explained to the people, they gathered up their pamphlets and went calling on their neighbors. The Block Leaders recruited WACS, SPARS, and nurses aides; they secured blood donors, made housing surveys, and worked on car-saving plans. As 1943 ended, they stood ready for whatever tasks the New Year might bring.

One other war service was established during the year as the result of the merger of two activities with similar functions. The American Unity Committee, which had been set up to establish and maintain a unity of purpose inside the State, and the Speakers' Bureau, which supplied speakers for meetings designed to preserve morale, were working towards parallel ends. When Dr. Daniel A. Poling resigned as chairman of the Unity Committee, because of his other war activities, it was therefore decided to combine the two organizations into the American Unity Speakers Bureau. Dean A. R. Warnock of State College, former secretary of the committee, became chairman of the Bureau, with Mrs. Jean Doverspike continuing as director. The State Council also employed Norman Howard, Pittsburgh labor leader, as its special labor representative. He made a study of industrial absenteeism in the State, and in October submitted an 11-point program to prevent it, emphasizing that health and good nutrition were vital factors in keeping war workers on the job.

Scrapping for Victory

More than a half million volunteers participated in the salvage program conducted by the Advisory Committee on Salvage under the War Services branch of the Council of Defense. This committee, headed by the Hon. Warren R. Roberts, of Bethlehem, consists of 45 members, and under it function 67 county salvage committees, with a membership of 3,199, and 1,326 local salvage committees, with a membership of 16,471, appointed respectively by county and local councils of defense.

Salvaging waste materials from the homes, farms, State, county and local governments, and business houses, except large industries, the salvage committees established a record in 1943, topping all other states in the shipment of iron and steel scrap to consuming mills, captured first honors in the national collection of silk and nylon hosiery, led in the collection of prepared tin cans, and was among the four leading States in the collection of used household fats.

As war production needs required increasing amounts of paper to be converted into paperboard for containers for munitions, food and medicines, as well as thousands of other things for the use of the military, a continuous waste paper campaign was launched in the latter part of 1943, which was expected to grow in proportions as the need for paper became more acute. Pennsylvania's plan for paper salvage attracted nationwide attention. At the same time, a campaign to supply the Army, Navy and defense plants with wiping rags was started through the Salvage Committees.

Salvage was one of the day-to-day week-to-week, month-to-month programs of the Council of Defense. Thousands of volunteers have worked ceaselessly and untiringly in the salvage program. Salvage was neither a drive nor a succession of drives. Collections of scrap metals, prepared tin cans and used household fats were continuous, and probably would be until the war was won both in Europe and in the Pacific. Discarded silk and nylon hosiery were collected for about a year in order to salvage the silk for remanufacture into powder bags and the nylon to be converted into parachutes. The collection of waste paper, suspended after a few months in 1942, was renewed in the last half of 1943 when increasing military needs created an acute paper shortage.

The Government's salvage needs were transmitted to the Advisory Committee on Salvage by the General Salvage Branch of the War Production Board, through Colley S. Baker, the State's executive secretary, who, chosen by the State Council of Defense, represented both the State and Federal Governments. The Advisory Committee on Salvage planned the salvage programs for the salvage committees of the county and local councils of defense, and these programs were then executed under local leadership. The organization was an excellent example of the volunteer cooperation that was developed during the war emergency.

The Advisory Committee on Salvage was appointed by the State Council of Defense, county salvage committees by county councils of defense, and local salvage committees by local councils of defense. So completely was the salvage program tied in with State, county and local activities and programs of councils of defense that, when special effort was required to obtain vitally needed materials quickly, other branches of the councils, such as air raid wardens, block leaders, fire wardens, etc., joined with the salvage volunteers in collecting scrap, or paper, or whatever might be the urgent need at the time.

Outstanding cooperation was given by many other organizations and societies, as well as various branches of the State government, with the Salvage for Victory program. An instance of this was the active cooperation of the Pennsylvania Newspaper Publishers' Association, which had a permanent, active Salvage Committee cooperating with the official State body. This committee assisted in the promotion and conduct of all salvage campaigns, and furnished much valuable publicity. Boy Scout organizations, and many others of the kind, were active in aiding in paper collections, while millions of prepared tin cans were collected through the schools, due to the cooperation of the State Department of Public Instruction, which aided in directing the collections, and the Department of Highways, which made it possible for the cans to be quickly collected from the schools and shipped to detinning plants.

While the salvage campaigns were difficult, more and more people were realizing every day that materials that formerly were wasted had a vital part in the winning of the war. In two years, Pennsylvania scrap metals had been converted into many battleships, airplanes, guns, tanks and bombs; household fats into glycerine for gunpowder or bases for medicines; tin cans for both the critically needed tin for the manufacture of war materials and steel for the furnaces; waste paper for millions of containers; rubber for conversion into tires and other military equipment. The salvage committees had conducted campaigns of education, and, despite the handicaps of transportation difficulties and manpower shortages, campaigns of collection.

Pennsylvania's success in salvage was recognized by the War Production Board with the award of a plaque, which was presented to Governor Martin, as Chairman of the State Council of Defense, by the Director of the Salvage Division, and by citations given to Chairman Roberts and Executive Secretary Baker.

Soldiers at the Home Front

The State's military defenses were improved during 1943. The Pennsylvania Reserve Defense Corps formally became the State Guard by act of assembly in May. Replacing the National Guard for the duration, the organization consisted of men who had volunteered for service inside the state. They wore army uniforms and were equipped with automatic rifles, Thompson machine guns, rifles, shotguns and heavier weapons. They learned how to use these arms in drills held two nights a week. In August each of the three regiments encamped at Indiantown Gap for a week to receive regular military training. They also took part in practice maneuvers, defending airports and similar strategic objectives.

The induction of eighteen- and nineteen-year-old youths into the Army caused a serious loss of personnel early in the year. This was overcome by reducing the age limit to seventeen and by a recruiting drive. By November the organization had expanded from three to five regiments, with headquarters in Philadelphia, Wilkes-Barre, Pittsburgh, Allentown, and Oil City. Milton G. Baker, superintendent at the Valley Forge Military Academy, became field commander of the Guard in July, with the rank of brigadier-general. In October three companies of Negro engineers were organized, the first time Negroes had been admitted to military organization in Pennsylvania.

The State Guard's little brother, the Pennsylvania Reserve Defense Corps Auxiliary, was renamed the Minute Men during the summer of 1943. This organization was set up in July, 1942, because of the number of semi-military associations which were springing up all over the state without responsibility to anyone. These groups were abolished by the order, and their members absorbed into the auxiliary. A committee composed of the chairman of the county defense council, the sheriff, and the mayor of the principal city in the county nominated a captain for each county, who then organized a company of sixty men. Each man furnished his own arms and equipment, and an armband was his only uniform. They were intended to serve inside the county during any emergency. At the end of 1943 there were 82 companies of Minute Men in 65 counties.

Pennsylvania acquired another military organization during the year. Auxiliary police of the civilian defense force in Harrisburg, Lancaster, York and Lebanon banded themselves into a mounted police troop with a strength of 230 men. Receiving police training from the State Police, they also drilled as cavalry and encamped for two days at the Gap. Growing up without official sponsorship, the organization finally gained admittance to the State Guard as a cavalry squadron.

Patrolling the Skies

Civilian defense lost one of its ablest branches on May 4, when the Civil Air Patrol was transferred to the War Department. The Pennsylvania Wing of the CAP included 3,000 men, organized in 33 squadrons. Ranking from Major to private, each man wore the regular army uniform with the CAP's distinguishing red shoulder loop. They served without pay, except for an $8 a day subsistence allowance when on active duty. The organization was expanded in 1943 by the formation of the CAP cadets. These were boys and girls in the last two years of high school, who were enrolled as cadets and privileged to wear the CAP uniform. They were taught such pre-flight subjects as navigation, meteorology, and radio. The CAP also enlisted Aviation Cadets for the Army.

Two hundred members of the Pennsylvania Wing flew with the Atlantic Coastal Patrol until it was ended on August 31. Theirs was an epic story of courage, which could not yet be told in detail. Flying tiny planes over the ocean, they spotted submarines and even bombed them, doing their task so well that they eventually worked themselves out of a job. A member of the Chester squadron, Lt. Delmont B. Garrett, lost his life on this duty on March 19. Another member of the same squadron, Lt. Royedon G. Paite, was killed on May 13, while flying an aiming and tracking mission for the Army.

Other jobs handled by the CAP included spotting scrap in McKean County, watching for forest fires at DuBois, and ferrying planes for the Army. Most important was the courier service, which grew out of a 30-day experiment in carrying express for Middletown Air Depot in the spring of 1942. The first courier station was opened at York the following August, with ten local plants underwriting the expenses. A station at Reading followed, and during 1943 two additional stations were opened at Allentown and Pittsburgh. A pilot was required to have 150 hours flying experience to carry cargo, 200 to fly personnel. Many dangerous delays to war production were prevented by this service. Experiments with deliveries by parachute promised to speed the service even more.

VI. THE STATE GOVERNMENT AT WAR

THE second year of Pennsylvania's war effort opened under a new Governor, Edward Martin, whose leadership both in governmental affairs and in the military posts which he had occupied prior to his election to the highest office in the State, eminently qualified him to take up the task of directing the State at war. In a brief and simple ceremony held in the Forum of the Education Building, due to inclement weather, the newly elected leader assumed his duties and took the oath of office as Governor of the Commonwealth on January 19. A short but pungent inaugural outlined the two basic objectives of his administration as the successful prosecution of the war to the utmost of the strength and resources of the State and due attention to solution of the complicated problems which must follow in its wake.

After paying tribute to the contribution of Pennsylvania to the war effort in preceding months, the Governor declared: "This war effort must go on, move forward and its tempo must be increased. To this, we today pledge ourselves and dedicate all our energies." "Peace with liberty," he continued, "was the hope, the ambition and the prayer of those who founded this Republic. Its achievement is still the great issue and the object for which the present conflict is being waged." "With the help of Almighty God, we pledge our resources, our hearts, our minds, the work of our hands, to achieve a quick and victorious end to this life and death struggle to maintain our freedom," concluded the new Chief Executive of Pennsylvania.

Aiding the Governor in his endeavor was a largely reorganized Cabinet which brought to his aid the services of several representative citizens of the Commonwealth prominently identified with a variety of business enterprises and the Republican politics of the State.

Within a matter of hours following his inauguration the new Governor was hard at work, and the members of the General Assembly were pledging their complete cooperation, regardless of party, to the passage of any legislation needed to implement the war effort. The Governor at once urged upon all of his subordinates in charge of the various departments of the State government the importance of economy, efficiency and decentralization of the functions of government wherever possible. It was not long before he was also to be found in various parts of the State becoming acquainted personally with war production, military and naval installations and other phases of the State's war effort.

In numerous addresses before various statewide organizations, Governor Martin emphasized again and again the important objective of winning the war and uniting every agency and every individual in the State behind that goal. Refusing to subscribe to the theory that a short and easy war was ahead, he emphasized to the citizens of Pennsylvania the fact that the road to victory was a long and hard one demanding the utmost in sacrifice and effort. "Work, pray and sweat, and the boys at the front will shed the blood for us," he declared in a Pittsburgh address in March. At Gettysburg, on the site of the critical Civil War battlefield two months later, he reiterated, "Here at home we must tighten our belts, sweat and sacrifice."

The General Assembly at Work

Early in March, Governor Martin presented to the Assembly his financial program for the fiscal period beginning the following June. The cost of operating the State government was estimated at over $147,000,000 less than for the preceding biennium, and despite the war the people of the State were pleasantly surprised to find that they might operate their government for the first time in a decade at a cost less than the usual half billion mark. The total budget presented by the economy minded Governor was $472,457,692. It was accompanied by suggestions for cutting taxes by over $40,000,000 for the new biennium. This was made possible by the liquidation of the deficit and cuts in the cost of relief and other State expenses. In his accompanying message the Governor called for the deflation of State government but also paid attention to the problems of a return to a peacetime economy by requesting creation of a Post-War Planning Commission and a constitutional amendment to authorize bond issues to finance its program to relieve stress and strain of post-war years.

Further recommendations of Governor Martin included the study of the possibility of returning relief to the counties, strengthening of some phases of the power of the State Council of Defense, consideration of school costs and legislation, reorganization of the State Parole Board to cut costs of operation and a reform of the system for collecting the State's portion of corporate net income taxes. Repeal of taxes on personal property, bank stock, shares and corporate loans and the mercantile tax was recommended. The Governor made it clear that his was not a program of "must" legislation and invited the cooperation and careful study of all proposals by the legislative body.

Wartime Legislation

Before its adjournment on May 9, the General Assembly considered and passed nearly five hundred acts, several of which can be listed as important wartime legislation. The powers of the State Council of Defense, headed by the Governor, were materially expanded. The Council was given authority to cooperate with Federal agencies in the control of black markets, protection of war industries and utilities and the enforcement of rationing. Penalties for failure to abide by the regulations of the Council were stiffened and made more effective. In another important enactment the Assembly granted to the Governor broad powers to suspend or modify, in cooperation with Federal authorities and a bi-partisan legislative committee, any State law which might interfere with the progress of the war effort in Pennsylvania. This was an important step toward creating the authority necessary to deal with any war emergency.

Several other measures dealt with war-created problems. The civil service structure of the State was modified in order to provide equal opportunity in State employment for returning veterans of World War II. The Secretary of Highways was authorized to cooperate with the United States Public Roads Administration in constructing and maintaining "flight strips" needed by aviation as well as the widening of roads and streets essential to servicing of war plants or military and naval installations. An important move toward meeting problems of the new air age was taken with the creation of a Pennsylvania Aeronautical Commission within the Department of Commerce to supervise and plan the development of aviation in the State.

Another war measure empowered the State Liquor Control Board to ration liquor supplies whenever necessary. An act designed to relieve the critical labor shortage authorized increasing the work week for minors and females to forty-eight hours. A measure making possible continued operation of heavy trucks on the State highways as an aid to war transportation needs was also adopted and approved by Governor Martin. The State's employers were relieved of a burden by the creation of an experience rating plan for unemployment compensation fund payments expected to reduce the amount which industry must pay into the fund by some $62,000,000. Paper work was reduced by limiting required reports to one each year rather than the previous four, eliminating thereby over three million reports. School authorities were authorized to close schools and otherwise alter the school program as an emergency measure to relieve farm labor shortages. Cost of living increases in pay for the teachers of the State were authorized.

Among the most important measures passed by the General Assembly was the establishment of a Post-War Planning Commission, approved by Governor Martin on April 23. The new body was to consist of ten members, appointed by the Governor and representative of the varied industrial, agricultural, education and civic interests of the Commonwealth, serving without compensation. A paid director and staff, together with technical advisory committees, were to complete the organization. The new Commission was invested with broad and general powers to undertake studies and research, to prepare plans and to recommend and assist in coordinating statewide plans to meet probable post-war dislocations. The conversion of war plants to peace needs, re-employment and the fullest possible development of the industrial, mineral and transportation resources of the State in the post-war era were among specific objectives set up for the Commission.

Despite increased appropriations for education, welfare and the war effort amounting to over $40,000,000, the tax bill of the citizens of Pennsylvania was reduced by the Assembly some $45,000,000. The shortest session in a decade, the wartime Assembly met its responsibilities in a most praiseworthy manner. Within one hundred and twenty-four days it passed a total of four hundred and ninety-three bills out of a staggering total of over seventeen hundred presented. Governor Martin lauded the legislative body upon adjournment for "many new laws among the 400 important items of legislation which will play a vital part in speeding the war effort."

Wartime Administrative Problems

The administrative organization of the State Government in the meantime continued to perform not only the routine tasks inseparable with the work of every department but also to contribute, under the inspiration of Governor Martin's leadership, to a variety of plans and activities which were designed to realize the twin administrative objectives—win the war and prepare for the peace to follow. In doing so, the State government encountered many of the same obstacles as private business under war conditions. One of these was the shortage of manpower. As more and more employees went into some branch of the service or were drawn to private industry by attractive wage and salary scales, the "help wanted" sign began figuratively at least to appear on many office doors. A total of over five thousand State employees were in the service by the end of 1943. Sixteen had made the supreme sacrifice. With the number of State employees declining materially, as in the case of industry and agriculture, those remaining were called upon to do more work.

The plans of government were likewise affected by war conditions and especially by shortages. Contracts for construction and supplies were hit by this condition. In fact, it made necessary a special legislative act approved May 7 authorizing the Department of Property and Supplies, entrusted with the task of providing the supplies for all State agencies and institutions as well as contracts for the construction or repair of State property, to purchase equipment and materials in the open market without advertising or competitive bidding. State institutions were authorized also to purchase foods wherever obtainable in their own localities. This was restricted only by the proviso that it was limited to period of the "state of war between the United States and any other nation or nations."

The Department of Property and Supplies experienced difficulty also in securing ordinary supplies and equipment used by various departments due to the diversion of raw materials entering into their manufacture to war production. Considerable limitations were also experienced in the construction program and in major alterations and repairs to State buildings and property. Materials again were hard to obtain and any major repair involving an expenditure of $1,000 or more required approval of the WPB at Washington. In order to comply with Federal regulations, the Department found it necessary to establish a priorities section to keep in touch with Federal agencies regulating the diversion of supplies and equipment. During 1943, approximately 85 per cent of all materials purchased by the Department required priority rating.

In order to meet the difficulties of the times, various economy measures were instituted. Employees were urged to conserve in the use of paper of all types and other supplies. Definite limitations on the State printing program were set up at the direct order of Governor Martin, both for economy and in order to conserve paper. The amount of correspondence from government departments was curtailed as much as possible and carbons were ofttimes placed on the backs of letters to serve as a paper conservation measure. Rubber bands and paper clips virtually disappeared. The use of telephone and other facilities was limited as a war measure, both to save funds and to keep transportation and communication lines free for the most vital possible usage. Rationing of travel resulted in a material decline in mileage traversed by State employees and by State automobiles. Cuts running to around 50 per cent in the use of telephones were reported by some departments. The Department of Highways cut its gasoline consumption by 300,000 gallons and motor vehicle travel by 4,500,000 miles. In every way possible the State set an example for the general public by tightening up on all non-essential expenditures of either time or money.

Responsibility for keeping wartime highways in good order to expedite the movement of war supplies rests with the Pennsylvania Department of Highways. Pennsylvania has 40,524 miles of improved highway, the largest in the nation, and despite handicaps due to lack of manpower and shortages of equipment and supplies the roads were kept in good condition for the increasing movement of goods and supplies. While passenger traffic decreased materially, due to rationing, the volume of truck travel was not so adversely influenced. As measured by gasoline sales, highway travel was off about 26 per cent over 1942 and 39 per cent as compared with 1941. The traffic remaining, however, was of the most vital character and did not permit any laxity in road repair and maintenance.

Despite limitations of materials, the Department was able to complete about 500 miles of new construction in 1943, while reconstruction, resurfacing and widening to the extent of $18,000,000 was necessary to expedite war travel. Bituminous and mineral coverings were placed on 4,061 miles of road, much of which was essential to temporary protection of war traffic burdened roads which awaited permanent repair with the return of peace. A considerable mileage in access roads to war production centers and supply depots or other military installations was constructed during the year. Snow removal was provided for 19,943 miles of highway, the most extensive service of its kind in the nation. Some 62,000 feet of reflector-type curbing installed during the year added to highway safety as night truck traffic increased in the war production areas. Increased attention to the posting of bridges for load limitations and similar problems demanded attention as traffic tended toward heavier vehicles.

One of the most important phases of the Highway Department's program in 1943 was its post-war plans. The Department set to work on the preparation of plans for highway and bridge projects in the State to be spread over a five-year period. Half a billion dollars in highway construction following the war, vastly improving the State highway system and entrances to cities, was the contribution which the Department proposed to make to post-war Pennsylvania.

Another State government unit especially important to expediting the war effort is the Department of Mines, charged with supervision of the great mineral industry of the State. The expansion of mining to meet wartime demands placed added burdens upon that Department in terms of mine inspection and attention to safety regulations and education. In wartime an injured miner is a casualty hardly less important than a fighter at the front. During 1943, the Department cooperated with bituminous mine officials to establish a low accident record unsurpassed since 1877. This conservation of manpower was an important aid to the production of some 200,000,000 tons of soft coal in Pennsylvania, about one-third the nation's needs.

The accident rate of 1.23 per million man hours for 1943 was achieved in the face of difficulties created by the war. Loss of skilled workers as well as other labor through the draft and the necessary use of workers lacking experience would, except for strenuous preventive measures, have tended to actually increase the accident rate materially. Closer supervision and more rigid inspection solved the problem. In the anthracite fields the same problem existed and also was solved with the best accident record in seventy-three years and a fatality rate of 1.44.

A number of the normal functions of the Department of Forests and Waters were such as to contribute directly to the war effort. The detection and extinction of forest fires assumed more than ordinary importance with the tremendous wartime drain on the lumber supply. Pennsylvania, with its huge State Forest timber reserves, was able to make a substantial contribution to that supply, and during 1943 more than 14,000,000 board feet were cut under contract. Some 70,000,000 are under contract for ultimate cutting. Through district personnel and affiliated Farm Foresters assistance was given private owners of woodlands in making their timber available for war use without unnecessary depletion of timber reserves or unwise cutting of undeveloped timber. The Department is responsible for operation of the Pennsylvania Maritime Academy which graduated sixty Cadet-Midshipmen as a contribution to officering the Merchant Marine.

Special wartime functions of this Department included assistance rendered Civilian Defense authorities in training volunteers in the Forest Fire Fighters Service established as a part of the civilian defense program. Portions of State owned forest lands have been used for army maneuvers, bivouacs and practice marches. At Valley Forge Park the Mount Joy tower was used by the Anti-Aircraft Corps. Certain other areas were designated for cultivation to produce needed food, while still others were utilized as training areas.

Personnel of the Department of Forests and Waters has been active in the war effort through cooperation with the fire and air raid control services. Help was also rendered the U. S. Weather Bureau in flood forecasting, the Employment Service in placing men, the Defense Command in reporting planes and in forest fire protection in areas surrounding supply depots, explosive plants and army posts. The work of the department, in common with others, was adversely affected by the war in terms of shortage of men for fire warden and other duties. Normal maintenance and development work felt the pinch of wartime scarcities while transportation was more difficult. In part, the manpower shortage was alleviated by the employment of women and the use of high school youth.

Pennsylvania's Department of Welfare was presented with important problems as a result of wartime developments in the second year of the war. Not only was the personnel of the thirty-two institutions under the department curtailed by some two thousand employees as a result of the war, but burdens were increased. Some effects of the war on the civilians were reflected in an increased population of the State's mental institutions. Problems appeared among men, women and children at home as a result of stresses and strains and also among hundreds of returned inductees. The Western State Psychiatric Hospital at Pittsburgh established a cooperative program with the army to study these conditions.

Through expanding the food production program of the various welfare centers, contributions were made to meeting food shortages by reducing demands on open market supplies. The Prison Labor Division entered into contracts for $350,000 worth of material for the armed forces including such items as clothing, tent pegs, crates and boxes, furniture and similar materials. All of the institutions were able to make substantial contributions to the various salvage drives. Medical and nursing services were furnished to the armed forces and those trained in psychiatry were especially in demand. Five base hospitals are commanded by personnel trained in the State Welfare Department. Each welfare unit has its own council of defense and similar war organizations which have helped build citizenship and morale.

One of the vitally important units of the State government under war conditions is the Pennsylvania State Police. Here again the manpower problem entered the picture as the normal force of 1,600 men, due to enlistments and other causes, was reduced to less than 1,200. The Bureau of Criminal Identification, Detective Bureau, Bureau of Fire Protection and Laboratory for Research all had special war tasks. The Communications Division carried on radio and teletype inter-troop communication and liaison with municipal police forces. Close contact with both the FBI and the Military Intelligence was maintained and much important investigatory work carried on connected with protection against sabotage and subversive activities. One of the immediately important war services of the State Police continued to be the patrolling of highways and directing of traffic connected with rapid movement of troops and supplies across the State. All of these duties combined to make the nationally famous Pennsylvania State Police an important factor in the war effort of the State.

The importance of food production and the safeguarding of the health of the people through adequate inspection of animals and foods used for civilian consumption made the work of the State Department of Agriculture of more than ordinary importance in 1943. Specific State laws concerning the protection of both producer and consumer in processing, packaging and marketing of foods, the control of plant diseases and insect pests and the maintenance of the health standard of certain farm animals are subject to enforcement by the department and consumed much of its time during the year. Many new problems in the control of animal and plant diseases were encountered because of unusual conditions during the year. Many extra assignments had to be met despite the inevitable shortage of personnel due to war.

Work of the Bureau of Animal Industry in control and eradication of tuberculosis, Bang's disease and other farm animal diseases was of especial importance to maintaining an adequate food supply. Livestock sanitation, hygiene and supervision of issuance of over 3,000 slaughter permits involving inspections to protect the public against disease as well as black market frauds were other duties. The tasks of the department in this field increased but were taken care of simply through more man hours of work by its staff. The work of the Bureau of Foods and Chemistry was likewise important because upon its inspections and the upholding of standards of quality of both foods and other agricultural products depended in many ways the health of the people of the State. Over 44,000 inspections were made by this bureau and over 3,000 samples analyzed resulting in some six hundred prosecutions.

Work of the Bureau of Plant Industry in the Department of Agriculture was made more difficult by an alarming increase in the spread of the European corn borer during the summer of 1943 in the central and southeastern sections of the State. In cooperation with Federal authorities, a survey was made of the Philadelphia water front with a view to checking possible importation of new plant pests. Eradication of the gypsy moth in the Scranton and Wilkes-Barre area was continued. The increased need for certified seed presented another inspection problem for this division as did the marked increase in commercial canning and general food processing. At no previous time in the history of the department were its various inspection services called upon to perform so varied and extensive duties.

Both the Secretary and Deputy Secretary were called upon to perform additional work necessitated by war. In many ways, the department through its contacts with farm leaders and organizations acted as a coordinator in encouraging the agricultural industry of the State to expand production and also in assisting to solve labor, machinery, feed and fertilizer shortage problems. In cooperation with Governor Martin and eleven neighboring state governors, an active effort was made to improve the milk shortage situation. The Secretary was called upon to act as the chairman of this activity and also as a member of the Northeastern States Committee on Feed Shortages. Through the office of the Deputy Secretary arrangements were made which permitted use of the huge Pennsylvania Farm Show Building in Harrisburg as a center for training airplane mechanics for the Army.

Due to the war the usual annual State Farm Show was cancelled in 1943 in favor of meetings in Harrisburg of farm leaders and associations for discussion of mutual problems. The customary exhibit and show features of the occasion were absent, but the Department of Agriculture acted as host to the farm groups and their meetings gave impetus to statewide plans for increased farm production during the year.

The work of the Department of Public Assistance concerned with relief administration in Pennsylvania was greatly changed as a result of the war. State relief rolls, which began to decline early in the war, continued to do so during 1943 as unemployment virtually disappeared. With few exceptions, the remaining relief load aided by the department and the County Boards of Assistance consisted of the aged, children deprived of parental care, and those suffering from some type of mental or physical handicap. This necessitated an increased attention to the individualized case treatment of relief recipients with a view to meeting their problems and encouraging every possible self aid.

Every aid was given under the assistance program in encouraging employment through transporting workers from shortage areas to centers of demand for labor, finding places in part-time jobs to relieve local labor shortages, and in some cases providing a subsistence grant to tide the recipient over a period of readjustment. In order to determine the capabilities and limitations of those of doubtful employability, the department cooperated with other State and Federal agencies in operation of a Mobile Trainee Acceptance Unit. This was sent into a number of counties to administer mechanical aptitude and related psychological tests. Complete medical examinations were given preceding the tests by local hospitals or physicians. Other efforts in the same direction included referrals for employment, vocational training, or rehabilitation, as well as the education of employers in the employment possibilities of handicapped workers. The use of this type of worker was materially increased as a result.

The combined relief load of the department and the WPA was reduced in 1943 by approximately 46,000 cases. To meet varying needs of dependents of men in the armed services, a cooperative plan was worked out with the Red Cross whereby either the Army Emergency Relief or the Department of Public Assistance agreed to provide basic maintenance for needy families of service men until the receipt of Federal dependency allowances. The State also agreed to supplement the allowance in cases where it did not serve to bring the family living standard up to that set by the department. Pennsylvania became a leader in thus aiding in the care of the dependents of service men.

Other wartime functions of the department included continuance of dependency investigations for draft boards, compliance with requests from Selective Service for pertinent health and social data from case records as an aid to medical examination of inductees, investigation of the dependency status of enemy aliens, and cooperation in development of plans for emergency welfare service in case of enemy action. The duties of the department were administered without serious difficulty despite the loss of nearly six hundred employees of state and county offices to the service and about one hundred to Red Cross and similar war services.

Another agency of the State intimately connected with the war effort is the Department of Labor and Industry. One of its major tasks is that of supervising the well-being and safeguarding the welfare of industrial labor through the enforcement and maintenance of a variety of control measures. Another is that of assisting in the establishment of safety standards, sound labor relations with capital, and the collection and dissemination of a variety of information concerning industrial and labor conditions in the State. Inevitably the successful conduct of these several responsibilities was intimately connected with war production, especially during the peak year of 1943.

Through the Bureau of Inspections the department was called upon to pass upon plans for new buildings, conversion of old structures, various installations such as boilers, elevators and certain equipment with regard to the maintenance of the legal requirements for safety. Inevitably much of this work was of an emergency nature and placed a great strain on the bureau's facilities. The vocational rehabilitation services of the department were called upon as never before in their existence as a result of a combination of factors. The increasing accident rate, tripling since 1941, meant that many injured workers must be guided back to productivity. Through its service the Department of Labor and Industry restored thousands of workers to useful employment ranging from the blind and deaf to those with missing limbs. In many instances these workers proved for certain types of work superior to those without handicaps. Special advisory services and training programs were of course necessary to adapt the handicapped to their new work.

Before the Industrial Board of the Department, headed by the Secretary as chairman, were brought a variety of problems relating to the several laws and regulations concerning hours and other conditions of employment, as well as the use of women and children in industry. As the labor shortage grew more acute, these multiplied. During the 1943 legislative session several modifications of existing legislation were permitted in view of the war which allowed the department, with the approval of the board, to grant certain exceptions to those in war work. Each individual case had to be submitted for disposition and nearly two thousand were considered through 1943. Problems, resulting from emergency housing of industrial workers and involving new factory construction, were handled in a similar fashion by the Department's Bureau of Industrial Standards. The Bureau of Women and Children found its work complicated by the increased employment of both groups under its charge. New safety hazards developed in connection with the employment of women, and special work permits were required in many instances for the use of women and minors as workers. These and many other wartime duties of the department were greatly enlarged under conditions prevailing in 1943.

The close of the second year of the war found the Pennsylvania Public Utility Commission subordinating every other effort to that of expediting the conduct of the war. One significant move in that direction was taken on June 7, 1943, when the Commission issued a "Statement of Policy" regarding utility earnings in Pennsylvania, designed to husband increased wartime earnings for use in post-war rehabilitation rather than to dissipate them in added dividends and inflated salaries. Several other State regulatory bodies have followed in the footsteps of the Pennsylvania Commission.

Another example of the Commission's intelligent cooperation in meeting war conditions was furnished in connection with the problem of rate increases in terms of their possible influence on the price structure. Through cooperation with the OPA a sensible system of rate control was established which preserved the plenary powers of the State and yet assured stability of the price structure in so far as it might be affected by rates.

Several surveys by the Commission have been important in determining the nature and best wartime use of the power resources of the State. These involved studies of the maximum capacity of the steam and hydro-electric generating facilities of the twenty-three major private utilities and the fifteen municipally-owned plants. Load curves were prepared from the surveys and submitted to the Federal Power Commission. This information proved of the utmost importance in determining locations for war industries as well as other installations of military or naval importance. Similar surveys on the generating facilities of industrial power plants, the capacity of the generating and boiler equipment and amount of energy required by the industries, and the excess available for distribution to other war users were a direct contribution to the best war use of the State's power resources.

As a move toward assisting in securing the maximum use of railroad equipment, the Commission permitted abandonment of local passenger service on fourteen branch lines to release equipment and motive power for use where most needed. Over 60,000 tons of rails were removed from useless rights of way, branch lines and sidings. Similar aid in salvaging badly needed steel was extended in connection with the street railways of the State. Normal regulating procedures were streamlined to permit quick approval for new access rail and utility lines to war plants, elimination of grade crossings and new construction. Temporary trucking permits were issued to hundreds of truckers to expedite the greatest possible use of their equipment to meet the wartime emergency.

Approval for new bus operations, where needed to meet heavy new transportation demands created by war, and surveys of transportation facilities similar to those for power and energy, designed to mobilize the greatest possible use, were other war functions which required decisive Commission action. Pennsylvania received nationwide publicity in connection with the taxicab "share-the-ride" plan when the Commission issued the first order requiring this arrangement and providing for payment of fares. The freezing of the rental car business in February, 1943, was another step toward conserving essential transportation. Permits allowing emergency abandonment of bus operations, where not justified by the need, as a rubber, gasoline and equipment conservation measure, were granted. In order to conserve both manpower and vehicles, the readjustment of meter reading was permitted the utilities and an estimated bill authorized with less frequent actual readings. By these various measures designed to permit the greatest possible efficiency in the utilization of transportation and electric power for war purposes, the Public Utility Commission made a genuinely significant contribution.

The year 1943 was an especially active one for the State's Department of Health. New services were initiated and established ones expanded to meet the health and welfare needs of a Commonwealth at war. In his inaugural address Governor Martin stressed the special wartime importance of maintaining public health and the department cooperated fully. The drive against venereal diseases in industrial and service center areas was one of the leading developments of the year. An isolation hospital for infected girls and women was established at Lancaster and other measures taken to curb this hazard. The Department's Bureau of Tuberculosis Control completed two major surveys during the year and the follow-up of rejectees with the disease was continued. Special attention was directed to this problem with regard to Negro groups and inmates of State institutions.

A program to establish blood plasma banks for the smaller hospitals of the State was inaugurated under department auspices in cooperation with the State Medical Society and the Foundation for Clinical and Surgical Research. Sixteen hospitals were supplied during the year. Medical services and healthier working conditions for millions of industrial workers were expanded in 1943 through the Bureau of Industrial Hygiene, again cooperating with private medical agencies. Industrial health hazards tended to increase under the pressure of peak war production. Aid in improving nutritional standards for workers also was provided through consultation.

Pennsylvania became a participant in the program utilizing Federal funds to provide maternity and infant care for wives and children of enlisted personnel in the armed forces on August 23. Applications from more than 10,000 persons were handled by the Bureau of Maternal and Child Health by January, 1944. New legislation simplified and improved the procedures connected with the issuance of vital statistics records during the year and provision was made for free copies for service men. A series of twelve regional health institutes was started on November 10 with a meeting at Erie. Designed to replace the former annual and statewide Pennsylvania Health Institute held in Harrisburg, the meetings provided opportunity for discussion of such important war health problems as venereal diseases, tuberculosis and nutrition problems created under war stresses. Two regional institutes met in 1943 and the program was planned to continue into the following year with nationally known public health authorities and leaders of the Pennsylvania medical, dental and nursing professions participating.

The Department of Public Instruction in 1943 continued its valuable contributions to the war effort already begun in earlier years. Although much of this work is discussed elsewhere in this volume, some examples may be given here. The Division of Child Accounting and Research had to handle a flood of work permits for school children, due to the labor need, to revise regulations under existing laws, and to enforce newly enacted legislation. The School Plant Division was forced by material shortage to modify designs for school buildings to replace buildings destroyed by fire or the settling of the earth in the mining regions. The Division of School Business prepared a statement indicating the administrative procedures to be followed in putting into operation the act raising teachers' salaries. The Division of Consolidation and Transportation kept a close check on school bus routes to see that they were in accordance with Federal regulations and to conserve gasoline, tires and equipment.

The Bureau of Instruction had the vast job of adjusting the curriculum to meet the war emergency and continuing the training program for war workers. The Bureau of Teacher Education and Certification developed plans to cope with the growing teacher shortage. The Bureau of Professional Licensing adapted its procedures to the accelerated schedule of education for the professions. The School Employes' Retirement Board found its work multiplied by wartime factors. The State Board of Censors waived its fee for films produced by or for the United States Government. The State Library and Museum extended its facilities to military personnel within the State. The Historical Commission continued its task of recording all these activities as part of Pennsylvania's war history. Under direction of the Superintendent numerous statewide conferences of educators were convened to consider wartime educational problems and to implement the contribution of the schools to the war effort.

The State Department of Banking found itself in a position to make a contribution to the war effort in 1943 through an adjustment in the law relating to the fixing of legal reserves for State banking institutions. Responsibility for this was placed in the Department and the Pennsylvania State Banking Board. The amount of legal reserve required was promptly reduced in order to permit increased investment of idle funds in government bonds. The percentage of such government securities permitted as a legal reserve was also increased. Legislation suspending reserve requirements on war loan deposits for the duration and six months thereafter provided a further incentive for investment in War Bonds. Limitations on the amount of loans to one corporation or individual with respect to projects guaranteed by Federal war contracting agencies were suspended to encourage the greatest possible mobilization of capital for war production purposes. Through its office the department encouraged the State banks, which represented in October, 1943, resources amounting to $4,419,831,442, and deposits of $3,890,603,470, to utilize these funds so as to permit their free use for war capital.

Government obligations held by the Pennsylvania State banks reached a record high of $2,259,778,100, and the building and loan associations of the State contributed several million additional.

Several of the State commissions were likewise noteworthy for war services in 1943. The Pennsylvania Game Commission provided acceleration to wartime forest utilization, and the field force cooperated on numerous occasions with the FBI and other government agencies in necessary investigations. Under Game Commission auspices a statewide program was inaugurated to insure collection of deerskins and fats from fur-bearing animals. Over ninety-four tons of grease and 7,000 deerskins were collected as a result. Through the food value of the game killed under the Pennsylvania game protection and propagation system, still another contribution to the war effort was forthcoming. The game lands of the State provided recreational facilities for thousands who sought momentary respite from the strains of civilian war work.

The Pennsylvania Fish Commission made a somewhat similar contribution. The food value of fish taken from Pennsylvania streams in 1943 is impossible to estimate. Lake Erie, however, one of the world's largest sources for fresh water fish, furnished several tons every day. As a result of quick freezing and similar preservation methods this food supply was made available to more than a local market. The head of the Fish Commission is also a member of the Sanitary Water Board and the Water and Power Resource Board and through them the Commission cooperated in considering problems in that field. Through its educational facilities the Commission provided illustrated talks to USO and service centers.

Effective cooperation between the State Insurance Commission and the insurance companies, associations, fraternal societies, and agents and brokers became increasingly necessary under peak war conditions. The insurance business was hard hit by the manpower situation and yet it was called upon to perform many added duties. Its resources were of special importance in terms of the wartime financial strength of the State. Its protective functions were more important in war than in peace. Army authorities appealed to the insurance departments of the several states to aid in the inspection of manufacturing plants and other business establishments handling sub-contracts for the armed forces. Pennsylvania's Commission, with the Insurance Commissioner serving as chairman of a State Advisory Committee, cooperated in this program. Evaluating committees were set up in five areas of the State to supervise the inspection work of over two hundred volunteer inspectors, chiefly from the ranks of insurance company field personnel. Inspections covered fire protection, accident and general protection as well as defense against espionage and sabotage. Both through these special wartime assignments and the regular work of supervising the insurance business of the State as affected by the war, the Insurance Commission was called upon to perform important wartime work.

Several other divisions of the State government found themselves influenced by the war or contributing to the war effort directly, though in lesser degree than those already mentioned. Difficult problems were faced in 1943, for example, by the Liquor Control Board in charge of the State stores. The declining supply of liquors resulting from the diversion of the distilling industry to production of industrial alcohol perplexed the Board until the introduction late in the year of whiskey rationing provided some relief. Shortages still continued, however, with no prospect of alleviation. The enforcement division found its activities greatly complicated by conditions prevailing in war centers. Areas near Army and Navy installations were especially troublesome as were those surrounding war production centers.

The threatened milk shortage and problems connected with maintaining the State's vital milk supply were faced by the State Milk Control Commission during the year. While the dairymen sought from the Commission permission to raise prices to meet new production costs, the OPA forbade the agency to do so. Work of the Justice Department was increased in 1943 by the session of the Assembly which meant drafting of legislation, consideration of its constitutionality and similar problems. The necessity for perfecting important wartime regulatory measures made this task one of more than ordinary importance during the year.

The State's Department of Internal Affairs was given an independent administrative status during the year by act of Assembly. Its work was on the increase as a result of demands of war. Increases in land transactions resulted in more work for the Bureau of Land Records in the department. The work of the bureaus connected with utilities, municipalities and weights and measures also was expanded as more demands were made upon the department for information and advice. The Bureau of Topographic and Geologic Survey continued to assume extraordinary importance as the demand for new sources of mineral wealth increased. Surveys designed to improve petroleum production through increased recovery from wells, locate manganese deposits, a detailed study of dolomite deposits, iron ore, mica, and other mineral deposits of vital war utility were all under way in 1943. The Secretary was called upon to serve on numerous committees and boards dealing with wartime affairs.

As the problem of planning for the years after the war came to absorb more and more attention, the importance of the work of the Bureau of Municipal Affairs in the Department of Internal Affairs became obvious. Cooperating with the State Planning Board of the Department of Commerce, the bureau was able to arrange in 1943 for a series of regional meetings to be held early the following year for discussion of the position of local government in the planning picture.

As the principal fact-finding agency of the State in the field of its economy, the State Planning Board in the Department of Commerce found its burdens multiplied by the needs of war in terms of location of new industries, expansion of housing and other wartime facilities. In the search for new sites for war plants, analysis of labor supply and other conditions important to locating a war production unit, the Department of Commerce continued to play an important part in 1943. Distribution of maps, films and publicity material for civilian travel was changed largely into the supply of the same items for the armed forces. Literature and films were sent to every part of the world upon request from those in the service and to USO and similar centers. Many a Pennsylvania soldier caught in the midst of "bragging" about the wonders of the Keystone State, sent a rush order to the Department of Commerce for information to back up his statements.

The people of the State were entitled to feel that in the second year of the war they were not called upon to make sacrifices or assume burdens which were not equally obligatory upon their servants, the personnel of the State government, from the office of Governor Martin through the various grades of State employment. Led by the Governor, every office and every facility of the Commonwealth's government was devoted to conserving the funds and services of the State for war needs and encouraging the maximum mobilization of the power and resources of Pennsylvania for war.

VII. PRODUCTION FOR VICTORY

"TOTAL victory started on the production line; it will end on the production line, backing up the finest soldiers, best sailors and fightingest marines in all the world," wrote Col. David N. Hauseman, then chief of the Philadelphia Ordnance District, in the August 29, 1943, *Philadelphia Inquirer.* Truer words were never written, and they came from the head of one of the nation's most important ordnance districts, including a large part of Pennsylvania. From its mills and factories, together with those of the Pittsburgh Ordnance District, which includes the larger part of the remainder of the State, flowed an unending stream of the multitude of manufactured material necessary for total war.

Production for war is not merely a matter of making planes, tanks, guns, shells, ammunition and armor plate. There are literally thousands of specific manufactures which form a part of the production for victory pattern. The story of modern war production is comparable to a gigantic jig-saw puzzle, and it is only when all the parts are pieced together that the fighter at the front, whether in the air or on land or sea, can be provided with the finished product. And many things which are not weapons at all are essential to the success of the armed forces. There are still other manufactures necessary before any of these weapons or supplies can be produced. In the production of an amazingly large percentage of all these, Pennsylvania continued to play an important part in 1943. Because of the relaxing of security restrictions plus the lapse of time permitting accumulation of factual information, it was possible to tell this story more fully than at any previous time since Pearl Harbor.

From the standpoint of statistics it was a rather simple story. Pennsylvania's share of war production as measured by contracts, which is not a complete picture by any means, was roughly the same as the preceding year. It possessed some 6 per cent of Army, Navy and Lend-Lease contracts. The value of these increased from over four billion to some eight billion dollars in mid-1943 and to eleven billion by December. The number of workers continued to increase, as has been pointed out elsewhere, and significant changes took place in the nature of the labor force. Some new mills were completed, or additions made to old ones, but by and large Pennsylvania's production was made possible principally through the expansion of existing facilities and conversion to the new demands of war.

Probably the greatest expansion of new production facilities occurred in the steel industry. The largest wartime additions to the nation's steel production were completed in 1943 in the Pittsburgh district at the Carnegie-Illinois Edgar Thomson, Duquesne and Homestead works. Two blast furnaces, eleven open-hearth furnaces, three electric furnaces as well as slabbing mill, plate mill, forge shop, machine shop and other facilities were adding over one million tons of steel to production totals by the end of the year and appeared to clinch Pittsburgh's claim as "steel center of the world." This output made possible innumerable jeeps, tanks, armored trucks, guns, bombs, shells, landing craft, ships and other equipment which have sparked the worldwide offensive against the Axis. Steel plants in the metropolitan Pittsburgh area continued to produce 23 per cent or more of the total steel made in the United States and the State as a whole expanded its production from 28.5 per cent to 31 per cent of the national production from 1939 to 1943. In the latter year, Pennsylvania produced the staggering total of 27,500,000 tons of steel.[1] Pittsburgh was still the "Steel City" and Pennsylvania the "Steel State" for the United Nations.

Numerous were the Pennsylvania steel mills securing the coveted "E" Award as a result of their production records. At Monessen and Allenport the Pittsburgh Steel Company produced a great variety of war material, including shells, forgings, bullet core wire, camouflage mesh, rope wire, bomb shell tubing, stainless steel tubing and a dozen other steel products, as well as by-products important in the production of high octane gasoline and synthetic rubber. At the opposite end of the State, the Midvale Company secured an award through the production of large and small arms, forgings, armor plate, large calibre projectiles, marine shafts, tool and bar steel and many other items necessary to implement the war effort.

In the same region Bethlehem Steel, in addition to its shipbuilding and repair work, produced some three million tons of steel and nearly two million tons of steel plate, the production of which it had expanded 419 per cent over 1938 and in 1943 boosted 50 per cent over 1942. Bombs, wire rope and cable and a score of other steel products poured from its production lines at Bethlehem, Johnstown and Steelton. At Harrisburg, the century-old Harrisburg Steel Company contributed its bit, and secured an award by its production of drop forgings, couplings, cylinders, bomb casings and other steel essentials.

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[1] Special report on "Pennsylvania's Steel Production in World War I and World War II," prepared for the Pennsylvania Historical Commission by Tom Campbell, Pittsburgh Regional Editor, *The Iron Age*. See also the *U. S. Steel News*, January, 1944.

Nearby the Lebanon Steel Foundry on a smaller but no less important scale had produced since before Pearl Harbor armor castings for the Navy and Army tanks and half tracks. The famous "Circle L" castings of the Lebanon concern were to be found on virtually every battlefront serving a variety of protective purposes on fighting equipment. At Burnham, near Lewistown, the Standard Steel division of Baldwin Locomotive was one of the first to receive a Navy "E" in September, 1941. It was engaged in the production of anti-aircraft gun mount castings, and gun barrels, thrust shafts for the larger battleships, and a variety of steels for naval vessels and landing craft, as well as gears and wheels for locomotives.

It was difficult if not impossible to designate the indispensable metals needed for war uses. Steel was certainly one of them, and aluminum was another of vital importance. Aluminum had gone to war with a vengeance and its headquarters are in Pittsburgh where "Alcoa," the Aluminum Company of America, has its home office, though, of course, its activities are by no means limited to the confines of Pennsylvania. "Alcoa" was producing at the end of 1943 over two billion pounds of aluminum, a seven-fold increase over 1939 and 63 per cent more than the entire world's use of aluminum in 1938. The average plane is 75 per cent aluminum, and the ability to produce it was an absolute must to the rising air power of the Allies. About 90 per cent of production was used by the aviation industry. Fabrication facilities kept pace with the production of the metal, and millions were invested both by the industry and the government in expansion programs. Forging capacity was roughly twenty-five times what it was before Pearl Harbor. Pennsylvania plants were at Canonsburg, where aircraft forgings were made, and at Cressona, near Pottsville, and New Castle, as well as the famous New Kensington works, which dates from 1891, and at nearby Arnold. New Kensington is also the home of the Aluminum Research Laboratories where some of the most important wartime uses of aluminum have been developed. The Canonsburg, Cressona and New Castle plants were Defense Plant Corporation projects.[2]

Even though it has no seacoast, the Keystone State was outdistancing forty-two of its sisters in the construction of ocean-going vessels with a total of over one billion dollars in shipbuilding contracts. Only California, Massachusetts, New Jersey, Texas and Washington led Pennsylvania in contracts for ships and shipping equipment. From tiny Navy lighters to the mightiest battleship afloat, Pennsylvania-built ships were carrying destruction to the Axis. Largest was the U. S. S. *New Jersey,* built at the Philadelphia Navy Yard, a 45,000-ton battleship built in the record time of 33 months. Destroyers, destroyer escorts, minelayers, tank landing ships and a seaplane tender were other war vessels constructed at the same Yard. Six of the destroyer escorts were christened in one day, on May 29. Pennsylvania yards which completed landing craft in time for the invasion of Sicily included the Philadelphia Navy Yard, the Dravo Corporation at Pittsburgh and the American Boiler Works at Erie. The Lee Tire and Rubber Company at Conshohocken did its bit with rubber lifeboats for landing operations. Within twenty months of their inception, landing craft were available from Pennsylvania builders for mass use at Attu, Sicily and Rendova.

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[2] The facts regarding the aluminum industry are taken from a special report on "The Aluminum Industry in Pennsylvania" prepared for the Pennsylvania Historical Commission by the Aluminum Company of America.

At the century-old Cramp Shipbuilding Company yards two cruisers, a number of submarines, six floating workshops and other vessels had been produced since Pearl Harbor in record time. On April 18 Cramp's launched four ships in one day and six weeks later tied the record. The Bethlehem Steel Company built, converted or repaired three aircraft carriers, six cruisers, 37 destroyers, 64 destroyer escorts, four cargo ships, twenty tankers, 54 landing ships and nearly 200 Liberty ships in 1943.

Unhampered by distance, western Pennsylvania has been contributing in an astounding fashion to the shipbuilding program. On the very spot where Perry built the forest fleet which bested the British on Lake Erie in 1813, Navy lighters were under construction by the Erie Concrete and Steel Supply Company, which reach the Atlantic by way of the St. Lawrence. At Pittsburgh the Neville Island plant of the Dravo Corporation built three different types of war vessels rather than its peacetime river barges and tow-boats. Sub-chasers, LST craft and even destroyer escorts found a strange home on the Ohio River. A few miles away at Ambridge the American Bridge Company was constructing the latest type tank landing craft for the Navy.

Probably the world's largest private shipyards are those of the Sun Shipbuilding and Drydock Company at Chester, where about two-thirds of the tankers constructed for war use had been built. Powered by turbines, turbo-electric engines or Diesels, they are capable of making 16½ knots and can outdistance a submarine. In the first six months of 1943, Sun produced twice as many as in the corresponding period in 1942. It also built cargo ships on its 28 ways, employing some 34,000 people, and was one of the largest builders of marine Diesels in America. A list compiled by the Maritime Commission shows that Pennsylvania had in 1943 no less than 131 plants which produced some type of equipment for ships. There were few sections of the State which had not played a part in winning the Battle of the Atlantic.

The full story of the contribution of Pennsylvania industry to the production of war material cannot be summarized in the pages of so brief a bulletin, nor can the individual concerns be given more than cursory attention at this time. Many cannot even be mentioned at all due to space limitations or security regulations. Those which had won the highest production award of the nation, the Army-Navy "E," were, of course, the most vital units, and it is difficult even to mention all of them because of their number. One of the best known industrial concerns in the world is the Baldwin Locomotive Works of Philadelphia. Baldwin went to war in 1941 when the first eight-inch railroad gun manufactured in this country since 1918 was delivered to the Army. On December 8 of the same year the first heavy tank ever built in the United States roared onto the testing grounds from Baldwin. It also built medium tanks, was one of the world's largest producers of ship propellers, and designed and made semi-automatic molding presses used to speed the manufacture of airplane parts, shell forgings and a miscellany of other war materiel. This was over and above the regular job of building the well-known Baldwin locomotives, which not only were speeding the transportation of war goods on the civilian railroads of the United States but were found in all corners of the world. Baldwin 2-8-2 type locomotives, for example, hauled supplies on the Trans-Iranian line to Russia with which to mount its offensive.

In North Africa, Rommel's Afrika Korps met defeat in no small measure because in Berwick the American Car and Foundry Company was able to build the famous Jeb Stuart tank. One thousand had been built by August, 1941, and the fourth year of production was celebrated in 1943. These lightning fighters were with American fighting men wherever they were to be found, from the Marines in the Pacific theatre to Italy. Four Berwick-built tanks were the first Eighth Army vehicles to enter Tripoli. Tanks were not the only product of ACF. Armor plate, half-ton demolition bombs, crawler tractors, for use by the armed forces, and tank cars for hauling butadiene and styrene with which to make synthetic rubber were other contributions to total war.

Rayon had many war uses, and the three Pennsylvania plants of the American Viscose Corporation produced it in quantities. At Marcus Hook, one of the first 100 per cent war plants was largely completed by 1942 and producing parachute rayon. The Lewistown plant made rayon yarn used in parachutes for fragmentation bombs. The need for rayon for tire cords led to the centering of about 70 per cent of the Lewistown production on this need in 1943. At Meadville acetate rayon used in uniform linings, "Vinyon," a vinyl resin yarn, resistant to acid and used in filter manufacture, and an elastic "Vinyon" used as a rubber substitute were the principal products.

From remote places came stories of the lives of men saved and intrepid tasks performed under great difficulties with the aid of Army-Navy Ration "D." This contribution to the new needs of a total war was a product of the Hershey Chocolate Company at Hershey, and was perfected before Pearl Harbor, making possible its early mass production. The ration weighs four ounces and contains enough nutriment to sustain a person for a rather long period. A special tropical bar with added vitamin content was manufactured for use in those combat areas.

Glass plays an unusually important role in warfare, and under modern conditions of war the ingenuity of its manufacturers were strained to the limit in meeting special needs. In this the Pittsburgh Plate Glass Company took an important part. A great variety of special types of glass were devised by research engineers to meet special demands, most of which developed under combat conditions. Safety glass, curved glass, bullet-proof glass and some type of glass for use on virtually every combat vehicle were produced by this concern. Along with this phase of production went an extensive development of special plastics, paints and lacquers to meet war needs ranging from arctic to tropic temperatures.

Another western Pennsylvania concern contributed to the improvement of American fighter planes through products of the Liberty Mirror Division of the Libby-Owens-Ford Glass Company plant at Brackenridge. A fighter-plane rear-vision mirror was developed shortly before Pearl Harbor. Through a special thermal evaporation process, the metal mirror film was made as permanent as the glass itself. Thousands of these mirrors have added to the margin of superiority of Army and Navy pilots over their foe. Liberty Mirror also manufactured a forward-vision mirror for use where the pilot is unable to see over the nose of the plane, as well as numerous other types of vision equipment, utilized on virtually all types of planes and vehicles.

Victory in the air, on the sea and on the land was not only a matter of superior manpower but of machines, and the industrial genius of America was never displayed at a better advantage than in World War II. Ofttimes the auxiliary equipment of a plane, a tank or other fighting equipment was the extra something which gave it that margin of superiority, if ever so slight, which meant life or death to the man behind the throttle or gun. The Philadelphia division of the Bendix Aviation was one of the many firms producing that type of device. The widely heralded "Invisible Crew" used on American planes was more exactly the Gyro Flux Gate Compass, once termed the first new compass in 2000 years. It was made by Bendix at Philadelphia, along with a variety of precision equipment, self-starters and metal exhaust hose for Diesel-powered invasion vessels. Bendix also developed a waterproof emergency hand-operated transmitter, capable of sending SOS signals over a considerable distance, which saved many a stranded seaman adrift in a lifeboat.

The world's largest manufacturer of storage batteries long before Pearl Harbor was the Exide Storage Battery Company of Philadelphia, which devoted 90 per cent of its facilities to straight war production. There were over one hundred war uses for storage battery equipment. They were a vital part in aircraft, submarines, tanks and all kinds of automotive equipment, to say nothing of numerous communications devices.

Very important contributions were made by Pennsylvania industries in the production of parts essential to communications equipment. At Erie the Bliley Electric Company, a plant with about a hundred workers prior to Pearl Harbor, devoted all of its facilities to the manufacture of quartz crystals necessary to communications equipment. The Stupakoff Ceramic and Manufacturing Company at Latrobe concentrated on ceramic products for radio and electronic use. At Philadelphia the plant of the International Resistance Corporation, a twenty-year-old concern, was one of the largest manufacturers of resistors, vital in all control and communication devices. Production was increased 600 per cent to meet war demands.

Ball bearings literally make the wheels go round. Their great importance as an item of war material was indicated by the expenditure of planes, equipment and men felt necessary by Pennsylvania's General Arnold in the famous Schweinfurt raid. Within his own State were located the famous SKF Industries of Philadelphia with four great plants turning out ball bearings for both weapons of war and the machines necessary to make those weapons—millions of bearings. Two of the plants had been built since the beginning of the war. Bearings for aircraft, tanks and ships were only part of the need. The tube reducers used in rolling machines preparing aluminum for planes made use of huge SKF bearings. Few items were more indispensable.

One of the prime ingredients in the victory march was the production of 100 octane gasoline. One plant alone in the Philadelphia area was making enough to send 500 four-engine bombers from England to Berlin and return every day. The Sun Oil Company plant at Marcus Hook, the Atlantic Refining Company plant at Point Breeze, as well as refineries of the Pennzoil Company at Oil City, the Freedom Oil

Company, the Kendall Refining Company at Bradford, Quaker State Refining Company at Oil City and the United Refining Company at Warren were adding to the State's flow of this vital fluid.

Pennsylvania also contributed to the production of the planes which made use of this gasoline. One important aid to aviation was the production of air-cooled engines for training planes, liaison planes and the "Flying Jeep." These motors were produced at Williamsport by the Lycoming Motors Division of the Aviation Corporation of America, famous in peace time for the Lycoming motor, widely used in transportation. Both the radial and horizontal type of air-cooled engines were built at this plant. Propeller blades had also been made at the same place.

At nearby Lock Haven was the home of the well-known Piper Cub, product of the Piper Aircraft Corporation, which was making rapid peacetime strides as a producer of a light and maneuverable plane suitable for individual use. With the gigantic pilot-training program made necessary by the war the Piper Cub was adapted quickly to this need and became one of the most widely used planes of its type in the entire training program.

At Hatboro, in southeastern Pennsylvania, were brought together under direction of G. and A. Aircraft, Inc., parts for giant gliders to be utilized in the forthcoming invasion. Wings for these were constructed, of all places, by the H. J. Heinz Company, food products manufacturers of Pittsburgh, which found that its plant was adaptable to this type of war production. From "beans to bombers" and "pickles to pursuit planes" was a facetious characterization of the manner in which, within a thirteen-week period, parts of this great food organization, already producing many types of combat rations in quantity, were adjusted to the production of plywood wings for gliders and other aircraft. Cargo planes were placed under contract with the Edward G. Budd Manufacturing Company of Philadelphia in 1942, while the Brewster Aeronautical Corporation's Johnsville plant in Bucks County, despite a checkered production career, managed to make a substantial contribution to the naval aircraft program.

Another major aircraft production center was the Philadelphia Navy Yard, where the only airplane factory owned and operated by the Navy provided for the development of an all-metal patrol plane of the flying boat type. Established for experimental work during World War I, the Navy Yard center was equipped to build every type of part that goes into a plane and had one of the largest aeronautical research laboratories in America. Patrol bombers for the Seven Seas came off the Philadelphia production lines.

At Allentown Vultee Aircraft and its associate, Consolidated Aircraft Corporation, received contracts late in 1942 for nearly $150,000,000 worth of Navy torpedo bombers, and began the preparation of the former Mack Truck Company plant for this production task, the largest single aircraft assignment in the State. The Mack Company, manufacturing trucks for war purposes, gave a demonstration of patriotic cooperation difficult to equal anywhere in the nation when it volunteered to turn over its plant facilities for the badly needed aircraft and found other quarters. Early in 1943 plans were completed for erection of a plant at Scranton for production of bomber wings, while at Lancaster the Armstrong Cork Company added to an already extensive list of war products an aircraft department to build parts for the famous Marauder bomber and Corsair fighter planes.

In the automotive equipment field Pennsylvania again made a notable showing. Reports on "E" awards in the State showed that a number of manufacturers had been cited in this production field. The well-known Autocar Company of Ardmore, of course, had long been known for its automotive equipment. Much of its war production was under way by 1940 as a result of preparedness work with the Army. A multiple-gun motor carriage, the half-track scout car, fuel trucks for both the Army and Navy, a personnel-carrier truck and the Autocar tractor were among the several contributions of Autocar to a mobile war.

Other concerns which received awards for meritorious production in this same field were the Boyertown Auto Body Works, the Rogers Brothers Company at Albion and the York-Hoover Body Corporation of York. With but fifty-nine employees before the war, the Boyertown Company cooperated, even prior to Pearl Harbor, in developing front-line ambulance bodies and mobile repair shops for the Marine Corps. Mobile machine shops, tire repair and shoe and clothing repair shops on wheels were built in the form of trailers. A heavy-duty trailer, utilized for Army purposes, was the product of the Rogers Brothers Corporation, the first company of its kind in the nation to manufacture such equipment for use in World War II. York-Hoover was a producer of bodies for jeeps, and was an original designer and producer of this item. Special van bodies for the Army Signal Corps to be equipped with radar for anti-aircraft defense were also built at this York plant. A division of the company formerly making burial caskets was converted to building truck body seats for the Marine Corps.

The unsung heroes of war production industry were those concerns which manufactured the products vital to the rapid expansion of direct war industries. Without a tremendous expansion of the production of a multitude of gauges and thermostats, handling equipment and similar devices, as well as the perfection of many new and ingenious production or handling aids, the production miracle accomplished in the first two years of the war would have been impossible. It was in this particular field that a number of Pennsylvania manufacturers were cited by the Army and Navy for distinguished achievement. The companies ranged from large and nationally known concerns to relatively small plants, previously producing mainly for a restricted market.

W. F. Mosser and Son, of Allentown, were machine builders, with some forty-three employees at the outbreak of the war. Called upon in a short space of time to more than triple their employment, they recruited the necessary workers and reorganized the entire production program on a shift basis to make the greatest possible use of a small plant. Sluice gates for Navy drydocks, metal treating and metal furnaces for non-ferrous metals, and the machinery for their operation were wartime products of this concern.

A much larger company was the H. K. Porter Company, of Pittsburgh, whose Porter locomotives were used all over the world and at a very wide variety of plants and posts for the movement of materials. Equipment manufactured by the same firm was utilized in blending explosives and chemicals, while an ordnance division manufactured various types of shells, forgings, breech-blocks and similar ordnance products.

Handling finished war *materiel,* as well as the problems suddenly created in moving materials in war plants, was a matter of major importance in speeding the war effort. The contribution of such a concern as the American Pulley Company of Philadelphia through its manufacture of pressed steel hand trucks, used in warehouses, on docks and in supply depots, was one reason why it received an "E" award. An electric "mule" for the pre-oiling of Allison engines, used in P-40s, which greatly speeded up the production of these vital motors, was another aid developed by this particular company. Windshields, shells, rocket-gun projectiles and power-transmission equipment were other items also flowing from its production lines by 1943. Similar services were rendered by the Philadelphia division of the well-known Yale and Towne Manufacturing Company. It is estimated by industrial engineers that 30 per cent of the time involved in manufacturing is consumed in handling materials. Hoisting equipment of great variety was one of the Yale and Towne answers to this problem. Both in plants and warehouses, wherever American war production was found, the careful observer was apt to note also the use of electrically operated fork truck lifts, the high lift electric ram truck, as well as hand lift trucks manufactured by this concern. Loading cars and trucks as well as ships in record time to speed materials to needed points was made possible through the use of such equipment, the product of American genius, and was one of the reasons why the Philadelphia plant of Yale and Towne was able to display an "E" flag. At Lebanon, the Crescent Truck Company produced electrically operated industrial trucks, used both by industry and by the armed forces at depots and yards.

Heyl and Patterson, contracting engineers of Pittsburgh, were given an award, though esssentially a small enterprise, because of skilled engineering services in the development of necessary specialized equipment for the Navy. The rapid construction of huge new battleships to carry the war to the Seven Seas placed a heavy strain on existing facilities for mounting armor and equipment on these great ships. The design, construction and installation of giant hammerhead cranes, capable of lifting a million pounds for two of the nation's Navy Yards, was the principal war service of this engineering firm. Ore bridges and car dumps, as well as coke preparation units and other auxiliary equipment for the steel industry, were others.

Tools, tools and more tools, including many of special new design never before dreamed of as essential, was the cry which went up from the nation's industrialists in the hectic months of the early war years. Again, Pennsylvania industries, both large and small, did their bit to meet the need. Among the better known larger firms was Henry Disston and Sons, a century-old Philadelphia concern with an international reputation for its saws and tools. Every Disston tool became a war product in the great new demand for almost every conceivable kind of tool. In addition to its regular lines, however, the company developed many new tools specially designed for certain needs. Special types of saws were perfected to meet certain needs of the aircraft industry. A special file was designed to work in breech housings, while a huge 120-inch metal saw was developed for use to speed ship construction. At the same time, the facilities of the plant were made available for manufacture of a light armor plate for planes, gun shields and similar purposes.

A much smaller but no less indispensable concern which won an "E" award for its tools was the Landis Tool Company, which specialized in the production of the Landis Grinder, a vital machine used in manufacturing parts for engines and implements of war ranging from airplanes and gyroscopes to bomb sights, tanks and tank trucks, shafts, gears, pistons and numerous other essentials.

Instruments and gauges were no less important, and several Pennsylvania companies received awards for the excellence of their production in this field. Without this equipment many of the largest war production plants in the nation would have been empty shells. The Brown Instrument Company of Philadelphia was in this category, manufacturing several hundred different instruments. Some of them were vital to the speedy development of the high octane gasoline and synthetic rubber programs. Others are used on fighting equipment itself. From potentiometers for American and Russian and other lend lease equipment necessary in production of metals to flowmeters for a high octane refinery or pressure gauges for a jeep, tank or other vehicle, this Philadelphia concern could be depended upon to supply the need. The tremendous expansion of production of various heat-treated metals, as well as high octane gasoline and synthetic rubber, would have been impossible without mechanical and electric potentiometers, millivoltmeters, thermometers and similar instruments. Brown also manufactured a device for testing the efficiency of submarines, Liberty ships, landing craft and other Diesel powered equipment through the measuring of exhaust temperature. A flight recorder which automatically recorded over one hundred different temperature points on a plane in test flight contributed to the speedy production of fighters and bombers. Naturally, such equipment was in use in every part of the world.

Supplementing this work was the Leeds and Northrup Company of the same city which furnished the instruments and controls with which many other plants were able to step up production, and also manufactured several devices for the Navy. Again in Philadelphia, the Metlab Company provided furnaces for the manufacture of alloy steels. A special vertical furnace, designed for the heat treating of slender structural aircraft parts, nitriding furnaces for heat-treating gudgeons, bushings and other parts of tanks to super hardness, and a continuous automatic heat-treating furnace for the mass production of precision products, such as forged alloy steel aircraft fittings, were other Metlab products.

Thermostats of an entirely different but not less important variety were contributed to Army equipment by the Robertshaw Thermostat Company of Pittsburgh. Thermostats essential to control the temperature of ovens, steam tables and other food equipment used in feeding millions of men, together with shells, fuses, percussion primers, a special hand grenade fuse and the sub-contracting of precision equipment, such as manifold and pressure transmitters for aircraft, were victory items produced at the Scottdale and Youngwood plants of Robertshaw.

One of the largest wartime producers of the electric switchgear used in the electrolytic reduction of aluminum and magnesium and light and power control in many important war plants has been the ITE Circuit Breaker Company of Philadelphia. Plant expansion necessary to the maximum contribution to the war effort was completed by mid-1943 and virtually all production devoted to Navy uses. ITE equipment is an important adjunct to building landing craft for invasion. At an earlier date the company produced all of the low voltage power switchgear utilized at the famous Ford Willow Run plant.

Many and various were the war production tasks of a multitude of industries, large and small, in Pennsylvania. The doleful bong of the tossing bell buoy, and the weird whistle of other types of buoys, which guide the mariner to paths of safety along the coastal waters of America, may come from equipment manufactured by the Union Boiler and Supply Company of Lebanon. Like most of its sister plants, it also produced various other items needed by Uncle Sam, such as fabricated steel and equipment for power plants, refinery plants and other purposes.

Mechanical foam and equipment for use in extinguishing fires was made at the West Chester plant of the National Foam System of Philadelphia. Special problems created by bombing of ships and the resulting fires were taken care of by this equipment. Smoke pots, smoke shells and hand grenades used for protective screens on the battle front were made possible by the use of zinc oxide produced by the Beaver County Josephtown plant of the St. Joseph Lead Company. Wartime needs for asbestos were met in part with production from the Ambler plant of the Keasbey and Mattison Company. As in virtually every production field, the ingenuity of engineers was strained to meet new requirements of modern warfare. Asbestos screens for life boats to protect the occupants from burning oil, asbestos liners for soldiers' helmets, and asbestos gloves to protect the hands of machine gunners were a few forms in which this mineral had gone to war.

Pennsylvania's metal products industries produced much of the metal necessary to many special needs of the armed forces. At Bellefonte the Titan Metal Manufacturing Company met a multitude of demands for brass and bronze forgings, rods, die castings and machine parts which have expedited war production and won an "E" award for this section of the State. In Montgomery County the Summerill Tubing Company entered the war production field as early as 1938 with orders from British sources requiring steel tubing for aircraft production. Fuel injection tubing for Diesel engines, specially processed carbon and stainless steel tubing for hydraulic lines, tubing for industrial control instruments and for aircraft and radio equipment produced by Summerill were essential not only to war production but to the equipment of many fighting machines.

Heroic tales of new and unusual conversions to totally new types of products needed during wartime were so numerous as to defy even casual mention. One of the most stirring was the story of the Animal Trap Company of Lititz, which turned from manufacturing the devices necessary to trap vermin on the home front to those necessary for their extermination abroad. Mousetraps changed into bullet components, airplane parts, bomb parts and many other items, a vast majority of which were never seen by employees or management prior to Pearl Harbor. The Baker Company at Bryn Mawr switched from milk cans to shells, and the Burkey Underwear Company of Hamburg added to its line fragmentation bomb parachutes and special gas protective underwear.

Some of the largest peacetime industrial plants in the State virtually deserted production of their civilian goods and turned to an amazing variety of war materiel. The needs of the nation and its allies were so tremendous as to demand that every bit of machinery and manpower be pressed into service for arming the democracies. The great Erie and Philadelphia plants of General Electric, largely devoted to refrigerators and similar products before the war, met a multitude of war demands, including items ranging from gigantic improved turbines to drive American warships farther on 35 per cent less fuel, to bombs and tanks, or their component parts.

At Lancaster the large Armstrong Cork plant, devoted mainly to insulation and floor coverings before the war, was turning out shot and shell, cartridge cases, bombs and bomb parts, parts for tanks and planes, and numerous other ordnance, which made it one of the outstanding ordnance plants of the State. At the great plant and laboratories of the Westinghouse Company of Pittsburgh, the radios and other luxuries of a peacetime economy produced by this pioneer concern gave way not only to various electronic devices essential to warfare but to a variety of other war products. At Philadelphia in the opposite end of the State the Philco Corporation, largest pre-war manufacturer of radios in the world, produced war goods valued at over 100 million dollars in 1943. Radio and electronic equipment for planes, tanks and ships, ammunition for the famous bazooka gun, storage batteries, artillery fuses and shells were turned out by Philco. Out of its laboratories came many scientific weapons used in the war upon the Axis. Further contributions in the way of electronic equipment were forthcoming from the several Pennsylvania plants of the Sylvania Products Company of Emporium. Makers of radio tubes, the company produced a beacon type of buoy and many other items of equipment.

At Erie, which has been one of the leading war production centers of the State because of the diversity of its industries, among several other important war production units is located the seventy-five year old Skinner Engine Company, manufacturer of steam engines. In the early thirties this concern developed a marine design unaflow engine and began to produce it for war needs even before 1941. It was one of the first companies in the State to be devoted 100 per cent to war production, as its entire capacity was produced for the needs of the armed forces. Skinner engines were used on the new auxiliary aircraft carriers and by many other types of ships. Production facilities at Erie were soon exhausted, and complete plans for making the engine were made available to a Minnesota concern, which helped to make the Skinner marine engine an important aid to victory on the high seas.

The expansion of war production was accomplished in virtually every manufacturing establishment under difficulties which made the magnitude of the achievement the greater. Foremost among the problems faced was that of manpower. At the same time that the need for labor to meet new production demands expanded the draft and other factors tended to limit the supply. At the Lukens Steel Company plants in Coatesville, for example, the payroll more than doubled from less than 3,000 employees to over 6,000 between 1939 and 1943. At the same time some 1,500 men were inducted. The ITE Circuit Breaker Company reported that its payroll at the time of the passage of the Selective Service Act was 750. By 1943 it had lost over 900 employees to the draft. These conditions were typical of the wartime industrial employment situation.

New workers had to be obtained in large numbers not only to meet new employment demands but to replace those taken by the armed forces. New methods of employment recruitment were made necessary, and of course the retraining of old employees for new tasks as well as the adjustment of new workers to their often unfamiliar jobs was inevitable. In the words of one concern, "an entirely new organization had to be built from the ground up." School teachers, cooks, housewives, waitresses and many others, both men and women, who were utterly unfamiliar with industrial work, were fitted into the production pattern. Schedules of work were inevitable in virtually all plants, as the fullest possible utilization of every machine made it essential that the wheels of industry be kept turning twenty-four hours a day. The management of Pennsylvania industry as a body deserved an "E" award for excellence in view of the really stupendous task of organization and training the labor force which had been performed at the same time that production schedules had been doubled and tripled or better in the period since 1941.

Another major problem faced in many plants was the necessary re-tooling or reorganization essential to conversion to war production. As an older industrial state with a relatively fixed pattern of industrial development, this problem was undoubtedly more serious in Pennsylvania than in states experiencing a new wartime industrial development. While numerous plants were able to shift almost instantly from peace to war because of the fact that the product manufactured had direct war uses, or machinery could be readily adapted to producing certain needed war products, there were many others faced with virtual extinction unless complete conversion could be accomplished. This appears to have been true in particular of many of the smaller industries of the State which were producing a rather specialized product and ofttimes with a rather localized civilian market.

There were many thrilling stories of enterprise and industrial pioneering to be related in this regard. The Ingram-Richardson Manufacturing Company of Beaver Falls, one of the pioneer concerns in porcelain enameling, was faced with closure, but in 1942 became a partner contractor with the Standard Steel Spring Company in fabricating and heat treating armor plate for tanks. This required considerable added equipment and a virtual reorganization of the plant with retraining of workers, and yet within a year the concern won an "E" award. As the demand for armor plate was satiated, the company shifted to heat treatment of aluminum wire for rivets, aircraft propeller blades, boiler tubes and tractor treads. Blackout lamp brackets for Army trucks, ammunition trays and aluminum parts for aircraft, as well as parts for landing craft, were other manufactures.

At Philadelphia the Hess and Barker Company, peacetime manufacturer of printing presses, turned to making fine tools, jigs, fixtures and special machinery needed by war contractors. The Kane Manufacturing Company, which made insect screens and doors, blinds and storm sash, shifted after 1941 to producing radio chests, brackets and mountings for the Signal Corps and machine gun training turrets for aerial machine gunners of the Navy. The well-known J. G. Brill Company of Philadelphia turned from basic transit products to related war production. The company was a large producer of 75 mm. pack howitzer carriages, an extremely versatile weapon which can be broken down into six parts and mounted on a mule. It has a range of four miles and fires a 150-pound shell. From muleback it can be assembled in two minutes, or dropped from a plane by parachute and assembled in eight minutes. Trailers to carry a power plant for fire control of anti-aircraft batteries as well as trailers for radar equipment and over a dozen other items contributing to mobile warfare units were produced by this Philadelphia concern rather than the usual conveyances for civilian travel. At Lancaster the Hamilton Watch Company was unable to manufacture watches for civilian use for the duration, but it converted all its facilities to turning out precision instruments and materials for the war effort. The skill and the fine engineering necessary to make an accurate timepiece has proved of the utmost value in the production of numerous precision instruments needed to win the war.

As the end of 1943 brought prospects of lessening of war contracts and in some cases actual cancellations or cessation of war orders, Pennsylvania's manufacturers looked to the future with the same spirit of enterprise and initiative which had enabled them in some two years of war to achieve virtual production miracles. Concerns which had completed their own war contracts were turning to the aid of others through sub-contracting. In many lines of industry, research and engineering were thinking already in terms of new products and new markets to be developed once the war was ended. One company, the Titan Metal Manufacturing Company of Bellefonte, inaugurated in the last year a plan through which orders for peacetime production were secured with a view to post-war work for an industry still geared entirely to the war effort. Some of the most practical post-war planning underway was being undertaken by industry itself.

Any discussion of industry at war would be futile without some emphasis upon the role of the utilities, in terms of electric power and energy and communication and transportation. Goods could not be manufactured without power, nor could they be transported without the aid of the railroads, the airways and the highways. Much of the complicated business organization equally essential to production would have been an impossibility had the communication facilities broken down. These then were vital ingredients, along with steel, aluminum and other metals, and industrial genius and labor, in the picture of production for victory.

Fortunately, Pennsylvania had been well equipped in all these fields. One of the important reasons not only for Pennsylvania's significant leadership in war industry but also in explaining the location of numerous military and naval installations and supply depots in the State was its transportation and communication system. All of the great trunk line railways from seaboard to the interior of the nation pass across the soil of Pennsylvania. This provided the means for a shuttling back and forth of raw materials, parts and finished war *materiel* in a manner that was difficult to envision in any other single state. The role of transportation was more important in modern war production than ever before because in the great pressure to produce so much in so little time an unprecedented job of shipping parts and materials from many points had to be undertaken.

The people of the United States are very proud of their railroads, and Pennsylvania is proud of the several important systems which, while operating on limits far beyond its State boundary, are really in many ways Pennsylvania institutions. These include the great Pennsylvania Railroad system, the Reading Railroad, the Delaware, Lackawanna and Western system, and the Pittsburgh and West Virginia which are very much Pennsylvania concerns, to say nothing of several others which operate either locally or have considerable trackage in the State.

The story of the railroads and the war effort was of particular significance to Pennsylvanians because the State originates more tonnage than any other state in the Union. It ranks third in its railroad mileage, being exceeded only by Texas and Illinois. The number of cars handled by nine representative railroads within the State had increased to 18,883,034 cars in 1943, or 47.4 per cent. Pennsylvania's railroads were vitally important also because of the significant materials essential to national manufactures, originating principally within the State. These include steel, coal, limestone, cement and several other ores and metals. In addition, the transportation of petroleum, an overnight emergency, accentuated the vital importance of the State's railroads. An average of over a million barrels a day were moved by the nation's railroads and a great majority of it passed over lines which cross Pennsylvania.

Passenger traffic, as a result of limitations upon other means of travel, increased tremendously and was at least three times greater on an average than in pre-war years. What was said to be the busiest single rail line in the world was that of the Pennsylvania Railroad from Washington to New York, which averaged a train every eight and one-half minutes. As the largest car owner in the world, the same Pennsylvania concern was able to supply material assistance to virtually every other railroad in the country by loan of equipment.

In the transportation of vital materials the railroads which provided the iron ore, coal and coke for the great steel industry of western Pennsylvania played an especially important role. The Connellsville division of the Pittsburgh and West Virginia, for example, supplied iron ore from lake ports as well as coal from Pennsylvania mines to the great mills at Mifflin, Clairton, Donora, and Pittsburgh and returned the finished steel.

Every American soldier sent overseas required eight tons of supplies and equipment and about one ton of food and replacement materials each month of service. Because of its strategic position a very heavy percentage of this material moved through Pennsylvania; much of it moved on Pennsylvania-owned lines, and a considerable proportion was concentrated in such great Army and Navy storage depots as Letterkenny and Mechanicsburg. Large numbers of the troops serving in European theatres of operation likewise moved through Camp Reynolds in northwestern Pennsylvania, mainly because of transportation facilities in and out of Pennsylvania.[3]

Pennsylvania was likewise in a strategic position in its relation to the national movement of goods by highway. Such great East-West arteries as the Lincoln and William Penn Highways and the important Pennsylvania Turnpike route, supplemented by the lakes to the sea routes which provide access to both Ohio and Pennsylvania lake ports and a connecting link with the coastal ports, meant that a considerable part of the East-West movement of war materials by truck was through Pennsylvania. The North-South route likewise passed directly through the State, and Philadelphia was one of its important terminals. Philadelphia alone had over 18,000 truck operators, representing some 50,000 trucks, ranging from the half-ton pick-up to huge forty-two wheel trailers carrying many tons.

The importance of the trucking industry was not limited to the particular transportation need. Naturally, its most vital task was to fill rush orders of war material which might be needed quickly at a point of supply depot. Hardly less vital was the rushing of vital parts or supplies between different war plants. Few plants manufactured any war product in its entirety, and there was an amazing shuttling back and forth of raw materials, finished parts and similar items. Aircraft subassemblies were shipped from a Philadelphia plant as far as Chicago. Gun tubes were picked up at the Eddystone plant of Baldwin Locomotive and transported to York in an afternoon. The next morning, following heat proofing at York, they were returned to Ardmore to be mounted on half-tracks. One of 85 ICC motor carrier dispatching offices in the country, the Philadelphia office handled about one-fifth of the rush orders in the country and averaged about one hundred a month. These might range from hauling invasion barges to picking up parts for a crippled destroyer at some Atlantic port, providing parts for a tank factory in the mid-West or hauling an emergency consignment of badly needed farm workers from the South to fertile Pennsylvania fields. The trucking industry was particularly essential in the movement of perishable foodstuffs, both for Army posts and for civilian consumption. Well over 50 per cent of such food was usually hauled by truck. It was estimated that fully 85 per cent of all truck traffic over the Pennsylvania Turnpike was carrying war material.

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[3] Special report on Pennsylvania railway transportation prepared by Charles H. Graham, President of the Pittsburgh and West Virginia Railroad.

Pittsburgh, as a center of one of the greatest inland waterway systems in the world, had much to do with the war effort. A very sizable portion of the hauling in the coal and steel regions of western Pennsylvania is by river barge. The Monongahela provides 128 miles of river navigation with a nine-foot depth utilizing thirteen locks and dams to Fairmont, West Virginia. On the Allegheny to East Brady eight locks and dams provide over seventy miles of navigable river. On the Ohio, the Pittsburgh district river traffic includes over 100 miles and reaches to Cairo, Illinois. The standard river-lock installation can accommodate a towboat and six barges which can haul a tonnage equal to a seventy-car freight train. On the Ohio up to twenty of these barges can be handled. Over one hundred towboats operate out of Pittsburgh, which means a potential movement of heavy freight by river, equal to the hauling capacity of a similar number of large freight trains. The importance of this river transportation in this region with its heavy industries and its tremendous need for coal is obvious. River traffic had nearly doubled as a result of war demands.

In the development of air transport and its application to war needs the State had not been negligent. Unofficial estimates placed the total investment in the permanent development of aviation in Pennsylvania at the end of 1943 as one billion dollars. This included the value of plane plants, airports and equipment. While exact figures could not be revealed, it was evident that aviation had forged ahead greatly in the State as a result of wartime demands. Its control was under a State Aeronautics Commission. The Philadelphia area was very much a center of air transport and express activity, and it was indicated that air express in and out of Philadelphia in 1943 totalled 75,395 shipments, or about 215 a day. The average weight of shipments and the length of flight was notably increased. Preliminary figures indicated that over 14,000 tons of air express cargo were flown over eighteen lines during the year. In 1942, 10,850 tons were flown. December shipments in 1943 were nearly 20 per cent above the previous year. Elaborate plans for the post-war development of Pennsylvania aviation were in their initial stages by the end of the year. Pennsylvania's leadership in the transportation history of America bid fair to continue.

Communication utilities continued in 1943 to make an important contribution to the war effort despite many hindrances such as labor shortages and lack of essential materials for expansion. Philip C. Staples, president of the Bell Telephone Company of Pennsylvania, reported at the end of 1943 that some 60,000 persons were waiting for telephone service which the company could not provide due to lack of equipment and supplies. The amount of copper available for telephone use, for example, in 1943 was about 16,000 tons under needs. Despite this difficulty the number of phones showed a slight increase of 5.3 per cent. The total number of local calls in the State was 2,200,000,000 while toll and long distance calls totaled 150,925,000, an increase of 10.5 per cent over 1942.

The quality of wartime telephone service was kept at a high level despite great difficulties in securing adequate help. Over 20,000 employees were necessary to carry on the work of the Bell system in the State and the usual inroads by the draft were inevitable. Pennsylvania's telephone service was placed under an added strain because of the heavy concentration of both war industry and military and naval installations in the State. At Sharon, for example, the opening of Camp Shenango, later designated as Camp Reynolds, skyrocketed the calls from the Sharon office from 1,945 to as high as 5,137 a day. Similar problems were encountered at numerous other installations. Special equipment and installations were necessary to meet these wartime needs.

Equally important problems were created by the demands of war industry. The expansion of plant facilities required the moving of certain instruments, changing some extensions from primaries to secondaries, adding telephones where necessary and the vitally important task of adding to the police communications system necessary to protect production centers against dangers for either air raid or sabotage. Numerous were the special problems created and solved by telephone engineers in the hundreds of key plants producing important war materials. Exhaustive inspections and analysis of conditions were usually necessary, and then engineers were called upon to provide the necessary equipment and installations.

In addition to this service to war needs, the Bell Telephone Company of Pennsylvania was able to provide training facilities for over 800 men from the armed services during 1943. Telephone installation, construction and repair and other problems of communication were subjects in which company experts trained men in various branches of the armed forces at schools in Harrisburg, Philadelphia and Pittsburgh, in order that the communication needs of those services might be developed with sufficient speed to meet the emergency. New toll-switching systems installed during the year provided one of the most significant recent developments in telephone history to direct and speed the business of long distance calling.

Radio was not without its war services, too, as over forty stations in the State gave millions of dollars worth of free time to promote various war programs. In cooperation with the Incentive Division of the Navy, KDKA, the pioneer broadcasting station of the world, piped news broadcasts directly to industries in the Pittsburgh area during the lunch hour. The same station sold nearly a million dollars in bonds during the year by radio alone. For two years the station has had a Bond Wagon consisting of some forty persons making bi-weekly excursions into surrounding communities to entertain and sell bonds. Over $400,000 were sold in five stops during one drive. Many personal appearances were made by radio station stars on both Pittsburgh and Philadelphia stations at nearby Deshon and Valley Forge Military Hospitals. Victory garden information, messages concerning rationing and salvage campaigns were among other services of every station during the year. Dramatizations of local contributions to the war effort upon the part of war industry were featured over such stations as KDKA in Pittsburgh and its sister station KYW in Philadelphia.

The great public utility industry of Pennsylvania representing one of the nation's largest single concentrations of electrical power and energy turned all out for war in 1943 to climax a victory contribution dating since Pearl Harbor. Since World War I electricity had become the key not only to untold new reserves of power but of entertainment, education and diversion. Into the factories it had brought new machines and devices which did much to revolutionize industrial production. All of these potentialities—and more—were brought to the aid of the war effort. Electricity, providing as it does on an average some 87 per cent of the power potential of industry, became an indispensable agent to speeding the industrial production of the State and nation.

From Philadelphia and the Delaware to Pittsburgh and the Ohio boundary and New York on the north, a complex network of electric power lines transmitted electric energy from the sources of its production to the war plants where the ships, ordnance and other essentials of war were produced. Its availability aided the speedy expansion of many of those industries and yards, as well as conversion to new types of production, because of the ease with which electric power was adapted to such emergency development, as contrasted with the bulk of material and machinery necessary if other sources of power must have been relied upon. Its same adaptability speeded the mining of coal and powered the great modern electric steel furnaces, constructed for the wartime expansion of steel production in the State, and the conveyors along which moved shells and other ordnance. On the farms it added to efficiency both through its use with farm machines and by providing the light which lengthened the day.

Virtually all the electric power companies in the State were tied into a gigantic power pool, integrated with great networks of transmission lines in neighboring states as far as Illinois. Before 1939 the electric utilities of the State distributed more than nine billion kilowatt hours. During 1943 the consumption of electricity in the State increased 100 per cent to nearly 18 billion kilowatt hours. Generating facilities were expanded, and an increase of 12 per cent in generating capacity in the State had been made since 1939. In addition considerable quantities of energy were brought into the State from both hydro and steam plants outside its boundaries, but controlled by Pennsylvania companies.

It was estimated that in the large industrial centers of the State some 90 per cent of the electricity generated by local utilities was directly expended in the war effort. Approximately 60 per cent of the output of the entire State was in this category, and another 30 per cent was used in non-military activities essential to the public health and safety, such as service to hospitals, communications, factory illumination and so forth. On an average from five to eight times as much electric energy was being consumed as in World War I.

Production of power and its distribution was not the only war work of the electric utilities. Engineering facilities were utilized to the utmost in analysis of the problems of proper lighting which had been encountered in connection with greatly increased industrial production. War housing developments found services of utility engineers of value in the planning of such projects. Through various publications and special bulletins, advice on the repair and conservation of home electric appliances was provided. Farmers were presented with bulletins on the care and repair of their machinery. The home service departments of electric companies instructed thousands as to proper methods of home canning, while several hundred women were trained as leaders in demonstrating canning techniques. Advice on nutrition and food selection was provided through the same channels. The organization of a program for the exchange of used appliances added materially to the dwindling stock of electric appliances available for civilian use during the war.

Even so casual a survey of the wartime accomplishments of Pennsylvania's industrial, transportation and utility facilities revealed in part a fuller story of achievement which could be told at the end of the war and which would form a proud and large section in Pennsylvania's war history. It was a story which revealed the unusual ability of the American economic system to adjust itself to unprecedented emergency demands. It was an account which should give every citizen a thrill of pride at the tremendous power and strength of the Commonwealth.

VIII. A WARTIME ECONOMY

THE year 1943 gave every evidence of having been a year of climax in terms of the effect of the war upon the economic development of Pennsylvania. In broad outline at least it was possible to observe some of the significant trends in the war economy. The productive capacity of Pennsylvania, and likewise of the nation, apparently reached its near peak in 1943. This was true partly in terms of the volume of production of war *materiel;* partly in terms of the efficiency of the producing units. As a matter of fact one great industry, steel, was producing over normal stated capacity during the greater part of the year. It was also a year in which new plant facilities, construction of which had been arranged for previously to meet demands of war production, were almost entirely completed. Few new facilities were undertaken. Building contracts for factories, public works and utilities, for example, in the Philadelphia area suffered an average decline of over 70 per cent from 1942 levels. From every section of the State, reports from war industries indicated the completion, usually early in 1943, of numerous new plants or other facilities demanded by war needs. By the end of the year these new aids to production usually were contributing their maximum to the war.

By 1944 the major headaches connected with conversion were solved, a large percentage of the necessary new labor supply had been trained and other production problems which had plagued the State's industrialists were on the road to solution. These general problems common to all industry everywhere had been replaced by difficulties peculiar to localities or particular industries, such as shortages of materials or particular types of labor in certain areas. The year 1943 was a year of decision and consummation which boded ill for the enemies of democracy. Pennsylvania had fulfilled its promise to become an arsenal for the national war effort. It was giving the near maximum of its great economic power and resources for the cause of victory.

Pennsylvanians had never known before a year such as 1943 with its continuous tumbling of all-time records for every field of economic activity. Industrial production in the Philadelphia Reserve Bank district was at an average of 16 per cent over 1942. In the Pittsburgh industrial district the average climbed after a mid-year slump and reached a general level of about 10 per cent above the preceding year. For the State as a whole, the Bureau of Business Research at the Pennsylvania

State College reported that production in the durable goods industries rose 26 per cent over 1942. It is important to note that the increases were primarily in the heavy or durable goods industries directly affected by war contracts. It was a boom in the production of *materiel* of war.

In the Philadelphia area, a 51 per cent expansion in ship building sparked the advance, while the average increase in production in consumer's goods, or the light industries, averaged but 2 per cent. In many instances there were actual declines in this category. In the Pittsburgh area the great gains were in steel, plate glass, ship building and allied activities. The belching furnaces of the Smoky City were operating at over 100 per cent capacity throughout 1943 and produced about 23 per cent of the steel necessary to arm America. Nearly one-half the plate glass in America came from the same region.

For the State as a whole the production of consumers goods remained about stationary, according to the *Pennsylvania Business Survey*. The slowly dwindling stocks of department and other stores, especially those dealing in hardware, appliances and similar items, bore evidence of the extent to which the Pennsylvania economy had gone all out for war. Wholesale inventories of electrical supplies were 31 per cent under 1942, and wholesale dry goods 10 per cent. In many instances ersatz commodities had replaced original metal, rubber and other products on the store shelves. In other cases merchants sought to preserve their business equilibrium by startling shifts from electrical appliances to furniture, from auto supplies to work clothing or appliances and hardware to ladies wear. Inventories of department stores in the Philadelphia area in December were 7 per cent under those of the preceding year, though increased slightly over the preceding month despite the Christmas rush of buying. Shoe store inventories declined as well as those for furniture stores during the same period, another reflection of the shortage of consumer goods.

There were other indications of expanding economic activity during 1943, though many of them were tempered definitely with evidence that peaks had been nearly achieved. The trend of employment was still upward but lacking in any spectacular characteristics. For the State it was 5 per cent over 1942, with a total of about one and a quarter million workers in manufacturing, mainly in war industry. The increases in employment were substantial in heavy industries, but the average was held down by declines in many of the non-durable goods manufactures. Factory payrolls continued to expand the purchasing power of the State, as they reached in December a peak of about $55,000,000 a week, about 20 per cent over 1942. Since payrolls advanced at a rate about four times that of employment, there resulted a marked increase in what the individual worker received. The weekly income of factory workers increased from $42 to $46 during the year.

Other indices of business activity showed the same tendency toward steady growth. Measured by coal production, crude oil output, factory payrolls and industrial power sales, the level of general industrial activity in 1943 increased 17 per cent over the previous year, as reported by the *Pennsylvania Business Survey*. The general business activity in the State, as determined by bank debits, factory payrolls and sales of industrial power, was at a new all-time high and 18 per cent above 1942.

"The year 1943 closed with evidences that the sharp rise in industrial activity of the past few years has now pretty well levelled off," commented the *Pennsylvania Business Survey* on January 1, 1944. This did not mean that further rises in various indices of business and industry were not to be expected in the new year. It did mean that the so-called boom stages of the war economy were at an end. Both this fact and increasing ability to survey with more complete information the longer range impact of the war upon the economy of the State made it possible as 1943 closed to gauge some of the developments of the war period.

Pennsylvania unquestionably had made a strong contribution to the national effort to arm a defenseless democracy and assist embattled allies against a determined and vicious foe. The U. S. Department of Commerce figures showed that from June, 1940, to July, 1943, the State received contracts for war supply and facility purposes totaling $8,800,000,000, or 6.62 per cent of the nation's war production. Pennsylvania continued in sixth place among the states in war contracts, exceeded by Michigan, New York, California, Ohio and New Jersey in the order named. Its total war contracts had nearly doubled since July, 1942. Those looking to the future position of the State in the national industrial economy, however, were somewhat worried to note that Pennsylvania, with nine per cent of the national manufactures and second in its industrial production in 1939, was as low as sixth in war contracts.

Pennsylvania's income, as measured by income payments to individuals, had increased nearly 50 per cent from 1939 to 1942, or from $5,819,000,000 to $8,694,000,000. Upon a basis of the general increase in business activity in 1943 as 18 per cent, a corresponding increase in individual income may be estimated as carrying the figure upward by another one and a half billion dollars, or well over the ten billion mark in 1943. In common with its sister states of New York and New Jersey, however, the State, since 1939, had suffered a slight decline in the percentage of national income accruing to its citizens.

Accumulated capital, as indicated by bank debits, had increased at about the same place as the individual income, or from $27,684,000,000 in 1939 to $41,128,000,000 in 1942, an expansion of over 48 per cent. Bank debits continued to rise at a rapid rate until mid-year 1943, when they levelled off briefly and then began a sharp decline, which produced an average annual expansion of approximately 16 per cent. At the end of the year Pennsylvania banks were holding debits of $46,681,000,000, the largest sum since the boom days of 1929.

A further measure of the influence of the war upon the economy of Pennsylvania was provided by figures concerning the demand deposits of individuals, corporations and partnerships in banks. Since the larger portion of the State is included within the Third Federal Reserve, or Philadelphia District, statistics assembled by this District are a good barometer for Pennsylvania economic trends. Member banks reported an increase of 106 per cent in demand deposits from 1939 to 1943, as compared with a national average of 113 per cent. The Cleveland District, covering portions of western Pennsylvania, reported a 141 per cent increase, but this was in large part influenced by Ohio conditions. The Philadelphia District reports indicate that economic benefits resulting from war contracts were greatest in Pennsylvania during the early stages of the war, when existing industrial facilities of the State were called upon to produce war *materiel* in great quantities. During the post-Pearl Harbor period, the State was producing its maximum percentage of war goods. As time passed and new plant facilities were constructed in other sections of the nation, Pennsylvania's proportionate contribution has declined, accompanied by a decreasing share in the so-called war prosperity. Reflected in demand bank deposits, the Philadelphia district was 1 per cent above the national average growth from 1939 to 1941, and 7 per cent behind the national average in 1943.

A detailed analysis of the deposits of member banks of the Philadelphia District in July, 1943, involving some 217 banks, all but 27 of which were in Pennsylvania, reported upon in the December, 1943, issue of *The Business Review* of the Federal Reserve Bank of Philadelphia, provides interesting information. As of that date, the Philadelphia District held 5.4 per cent of the national total of demand deposits in banks. Its manufactures, however, in 1939 were 8.1 per cent of the national production and its share of the national income approximately 7 per cent. The difference was accounted for by the Philadelphia Reserve Bank as "owing largely to the increasing placement of contracts for war materials in other sections."

While the Pennsylvania share of war-created wealth in the field of manufactures appears to have suffered considerably, therefore, in 1943, its position in terms of individual or personal income was more satisfactory. Individual bank deposits in the Philadelphia district were almost exactly in equal proportion to estimated share of national income, or about 6.5 per cent. The Philadelphia Reserve Bank District further reported that 31 per cent of its member bank deposits were personal accounts, as compared with a national average of 26 per cent. Three-fourths of these were with banks with less than 100 million dollars of total deposits, or the smaller banks of the State. This reflected an encouraging diffusion of increased income in the smaller communities.

The geographical distribution of bank deposits, as analyzed in the Philadelphia study, provided some indication of the distribution of economic benefits from the war economy. Within the Philadelphia Reserve Bank District the most marked increase in deposits was in the southeastern metropolitan district, as might be expected because of the high concentration of war industry. Corollary to this was the fact that in this area by far the largest increase in deposits was attributed to business accounts. Several interior sections of the State, including the York-Lancaster, Williamsport and Altoona-Johnstown areas, experienced increases ranging from 60 to 80 per cent. The predominantly agricultural counties were not without a substantial expansion of deposits reflecting increased agricultural income as well as fruits of small industrial enterprise. The anthracite region profited least from the expansion of war income, as measured by this banking standard.

Further indications of the nature of the war's impact upon the State's economic life is provided in reports from Dun and Bradstreet's figures on "business births and deaths," measured by the names added to or deleted from Dun and Bradstreet's bi-monthly reference rating books. These show that in Pennsylvania the number of names added has declined steadily. For example, the retailers' names added to the September, 1941, reference book numbered 2,021, while there were only 1,193 added to the September, 1942, book, and only 899 to the one issued in September, 1943. This indicates a general slowing down in the "business birth rate" since the war began. The number of names deleted from the September, 1941, rating book was 1,875; it had increased to 2,354 in the September, 1942, issue, but dropped back to 1,949 in the volume for 1943. Analysis of the figures shows that in the September reference books, both in 1942 and 1943, the number of names deleted was markedly larger than those added in the following categories—foods, general merchandise, apparel, radio and electrical appliances, automotive accessories and parts, filling stations, hardware, lumber and building materials, farm and garden supply stores, cigar stores and gift shops. In no single field of retail trade were there more business births reported than deaths. The lowest mortality appears to have been among dealers in furniture, drug stores, restaurants and eating places, fuel and ice dealers. Service stores, including garages, suffered heavily from the war, with a heavy preponderance of deaths over births, as measured by the Dun and Bradstreet figures in both 1942 and 1943.

Shortages of goods and help were material factors in making life not altogether comfortable during the year for those who succeeded in remaining in any line of business. Statistics for virtually all types of retail trade show substantial declines in employment. In instances where increases were to be noted, merchants were quick to point out that often this did not indicate anything other than the fact that inefficient help made it necessary for two to do the work of one. To even the most casual observer it was evident that in a majority of stores of all types the combination of the draft and attraction of high wages in defense industry had created shortages of help and produced a marked deterioration in average efficiency.

The shortage of goods has already been partially discussed in analysis of inventories. By the end of the year it was by no means uncommon to find a large city department store with a solitary pair of sheets and a similar stock of what in ordinary times would have been the most standard items of merchandise. Added difficulties were provided by restrictions on deliveries made necessary by tire and gas shortages. Jewelers appear to have experienced the greatest boom in any field of retail business, though here also a shortage of goods was producing serious difficulty by the end of the year. Watches and clocks, for example, had gone to war as well as supplies of metal necessary to the replenishing of stocks of hundreds of gadgets and knickknacks dear to the feminine heart. Repair services suffered from the loss of personnel to such an extent that anyone desirous of any extensive watch or clock repair was faced with the prospect of a four to six month loss of use of the article.

Dealers in furniture, household appliances, hardware, radio and musical instruments were in dire difficulty by the end of 1943. Surplus stocks of pre-war merchandise were largely depleted and replacements of course were an impossibility in most instances. One result of this situation was the rise of a thriving "second hand" trade in many items which led thousands of citizens to ransack storage rooms and bring to light old equipment, such as electric irons, once discarded but now received with acclaim by the harassed dealers.

Strangely enough that emporium for dispensing the universal, the modern drug store, was not as hard hit by the war as might have been expected. Sales in 1943 were the highest on record, despite the loss of a multitude of items which had been a part of their trade miscellany in peacetime. Patent medicines were less abundant, due to restrictions on the use of alcohol and sugar in their manufacture; surplus stocks of quinine patriotically were turned over to the government and many other staple drugs were scarce. Supplies of toilet articles, rubber sundries and similar materials were seriously impaired by war conditions. The sale of first aid material, military sets, stationery, tobacco, and above all, vitamin preparations appears to have saved the day. What once appeared to have become a forgotten function of the drug store, filling prescriptions, was on the increase. Occasional difficulties in merchandising provided amusing interludes. When the WPB ordered slicing of bread to cease, the drug store became a favorite dispenser of a wood gadget to aid the unaccustomed housewife in reducing the solid loaf to edible portions. When, within a brief period, machine slicing was restored, the home slicers were immediately unsalable. No greater tribute to American ingenuity has ever been shown than the reappearance of these wood slicers, equipped with tiny wood axle and wheels and a handle, as a Christmas season children's toy.

Pennsylvania hotels shared in the general war boom, according to statistics of the Philadelphia Federal Reserve District. The average rate of occupancy increased some 10 per cent in 1942 and another 9 per cent in 1943, with corresponding increases in income. The benefits of the war, however, were not evenly distributed. Hotels in the cities with war industries and government offices were the principal beneficiaries, while those in less central locations and small towns which were dependent chiefly upon the tourist trade were suffering an intense depression. Inevitably, resort hotels, with the exception of those in the Pocono area, felt seriously the effects of gasoline rationing. Philadelphia came to share with Washington, D. C., the dubious honor of being one of the most difficult cities in the country in which to find a room.

The hotels, restaurants and taverns catering to the food needs of wartime Pennsylvania were doing the biggest business in their history in 1943. The general average for the year appears to have been nearly 30 per cent above 1942, as measured by sales. Increasing numbers of people, occupied with busy wartime jobs, found it necessary to "eat out." Rationing and increased income were other factors combining to lead thousands to use restaurant facilities more frequently than before. The result was a rush upon eating places, especially in the cities, which produced the unusual phenomenon of people standing in line waiting even to get inside certain popular restaurants.

The owners of the besieged dining rooms were not as pleased as might be expected. Operating costs were rising as rapidly, if not more so, than sales. It was difficult to secure at any price efficient help to replace workers inducted into armed services or attracted by positions in war industry. Rising food costs and the difficulty of serving more with less, due to rationing of food supplies, provided added complications. New supplies, such as kitchen utensils, refrigerators and similar items, were almost impossible to secure, and the quality of the silver and china deteriorated in even the most elaborate dining salons.

One of the consequences, according to the Pennsylvania Restaurant Association, was to put about 15 per cent of the entire number of restaurants in the State out of business. Along the highways, those dependent upon tourists suffered an average mortality of 50 per cent. Not all were by any means the small "hot dog" type of wayside inn. "Many of these include outstanding restaurants with investments of anywhere from two thousand to one hundred and fifty thousand dollars," states the Association. Many others were on the verge of closing at the end of the year and with little prospect for improved conditions ahead.

The average Pennsylvania business man in 1943 found himself in a peculiar predicament. There is no question but that the trend of all business was upward in terms of sales and free spending by the public enjoying a considerably increased income. Sales in most retail trade categories were from 5 to 19 per cent above the previous year, with an average statewide increase of 8 per cent. Manpower and material shortages, rationing and other problems made it difficult, however, to enjoy what seemed to be a period of prosperity. Not only that, but the business picture was very spotty for the State as a whole, and the general upward trend disguised the fact that in many communities and in many types of business, 1943 was a year of tragedy and failure. Adjustments, however, were probably made more easily under a war economy than in peacetime.

It was clear that the average Pennsylvanian had considerably more money to spend in 1943 than any previous year. What did he do with it? In part at least the problem was solved for him by Uncle Sam, who demanded a goodly portion in the form of taxes to meet the costs of the war. Pennsylvania's individual income tax bill more than doubled from 1942 to 1943; to be exact, it increased 109.8 per cent, and reached the total of $566,409,065.44 for the Treasury fiscal year. It was still mounting materially in the new fiscal year which began in 1943, due both to increased income and higher taxes. Corporate income taxes increased as well, and the total of individual and corporate income taxes paid to Pennsylvania collectors was $897,568,416.78. Miscellaneous excise taxes added well over 900 million more and employment taxes over another 100 million. Pennsylvania's total tax payments into the Federal Treasury for the fiscal year 1943 approximated $2,000,000,000, a sum which certainly would have startled Benjamin Franklin and Robert Morris.[1]

While taxes might be labelled as involuntary contributions, Pennsylvanians were hardly less generous in their voluntary contributions to the support of the war. Sales of Series E Bonds to June, 1943, amounted to $626,051,000. Pennsylvania was third among the states. Series F and G bond sales for the same period were $297,430,000, the second largest amount for any state. War Savings Stamps were sold to the amount of $49,477,000.

Pennsylvania's quota in the several war loans, two of which drives were conducted during the year, was a high one. The Second War Loan, from April 1 to May 8, headed by Benjamin Ludlow, was designed to raise $635,432,000 in non-bank sales of war securities. Pennsylvania exceeded its quota and went over the top 127 per cent, with total sales of $810,357,900. Series E bond sales totalled $31,413,300. For the drive the quota for the four-county area, including Philadelphia, approximated $165 per capita, as contrasted with the national per capita goal of $100. For the Third War Loan, from September 1 to October 16, under the direction of E. A. Roberts, chairman of the Pennsylvania War Finance Committee, the State's quota was the second highest in the nation, or $1,071,000,000. Pennsylvania again went over the top with sales of $1,205,979, or 113 per cent of quota. While exact figures, giving a state by state breakdown are not available, on a percentage basis adjusted to state quota for the First, Second and Third War Loan drives, Pennsylvania's voluntary contribution to financing the war by loaning dollars to Uncle Sam in the three war loans approximated four billion dollars through 1943. If total bond and stamp sale figures were available, including payroll deductions, in which Pennsylvania continued a leader, and individual and group purchases every day and every week, the figure would be much larger.

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[1] Official Treasury Department figures.

Pennsylvanians were no less generous in giving from war income to the various wartime charitable and relief enterprises. While the total sums contributed either in money, materials or services probably can never be compiled with any degree of completeness, it is safe to say that they amounted to several millions of dollars. The Pennsylvania War Fund, Inc., was organized early in 1943 as the State unit of National War Fund to coordinate the various war funds and charities. For about two-thirds of the State the Fund operated on a basis of cooperation with existing community chest or similar organizations; for the remainder it acted directly as a fund-raising agency. A totally non-profit organization, headed by William P. Witherow, Pittsburgh, as president, Donald McCormick, Harrisburg, as treasurer, and Wilbur F. Maxwell, Scranton, executive director, the Fund was administered by a board of directors widely representative of the State and its civic leadership. Ralph E. Weeks, of Scranton, was named State Campaign Manager for the drive opened in 1943. Pennsylvania's quota was $10,882,165, or a little over 8 per cent of the National War Fund budget. The campaign was well under way by October, and the last reports in December, 1943, indicated that hardly more than 10 per cent of the State quota remained to be collected. A total of $9,631,018 had been subscribed, with several large communities yet to complete their drives.

Every war relief enterprise in the nation, and they were numerous, emphasized in special reports prepared for the Pennsylvania Historical Commission the important part played by Pennsylvania. Up to the end of July, 1943, the British War Relief reported contributions of $304,000 in funds, some $800,000 worth of clothing, $320,000 in knitted wear, as well as seventy-six mobile kitchens and eighteen ambulances. The total value of all Pennsylvania's contributions was estimated by the agency as $2,500,000.

The story is much the same for other agencies. From October 28, 1940, to November 30, 1943, Pennsylvanians contributed, through fifty-nine Greek Relief Associations, $852,502.25 in funds, in addition to liberal quantities of clothing and similar supplies. A total of $6,543.93 was contributed to the French Relief Societies by individuals, and $8,522.70 by fourteen organized French Relief groups in the State. Sixteen Pennsylvania cities had French Relief organizations. To the Queen Wilhelmina Fund, citizens of the State gave for Dutch aid in 1942-43 $48,773.54, in addition to clothing and other articles needed for the relief of our ally. Some three hundred and twenty-four communities in the State had Russian War Relief activities and seven permanent headquarters were functioning. Year-round workshops were operated in Philadelphia, Pittsburgh, Reading and Pottsville. Clothing, seeds, medical supplies and watches and clocks were among the articles contributed in various drives, and the value of contributions in 1943 was estimated at $800,000.

While the average Pennsylvanian had much more money to spend in 1943, his ability to spend it was severely curtailed by the growing shortage of consumers goods which has already been discussed. Despite this fact, retail sales were up 8 per cent over 1942, and estimated at the tremendous sum of $4,400,000,000, an all-time high, and to be compared with the boom year of 1929, when sales were less than four billion. Statistics on retail trade for the year indicate that the typical Pennsylvanian was spending for the most part on clothing, eating and drinking, flowers and similar non-durable goods. For obvious reasons, he could not buy automobiles, refrigerators and similar items, or even make many home improvements, if a home owner.

A part of increased income was swallowed up in the slow rise of the cost of living, the bugbear of all wars. This rise, however, in Pennsylvania, as in the nation at large, had been kept within limits by price ceilings and other rigorous anti-inflation controls of the Federal government. As a result of these, the cost of living did not advance materially and tended to level off at the close of 1943. On a comparative basis, careful studies of living costs, as compared with income, made by C. S. Wyand, of the Bureau of Business Research at the Pennsylvania State College, justify the conclusion that increased income for all groups, such as farmers, miners and industrial workers was running considerably ahead of rising living costs.[2]

A large portion of the increased income of Pennsylvania was inevitably diverted, therefore, into savings in the form of bond purchases and bank deposits. As already noted, demand bank deposits in the Philadelphia Federal Reserve District increased 106 per cent over 1939, and about 31 per cent of these were individual deposits. The total of all demand deposits was nearly 3 billion. Moreover, for the nation as a whole consumer credit had been reduced about one-half since 1941, and there was no reason to believe that Pennsylvania was at variance with that trend. Just how many War Bonds were in the hands of individuals in the State appeared impossible to determine, but it approximated one billion dollars. Taken into account with individual bank deposits, this meant somewhere in the neighborhood of two billion dollars in accumulated purchasing power in the hands of individual

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[2] See the *Pennsylvania Business Survey,* Bureau of Business Research, Pennsylvania State College, May, 1943; January, 1944; February, 1944.

Pennsylvanians at the end of 1943. The implications of this in terms of conditions following the war required no comment. Post-war planners were entitled to count upon a considerable reserve of purchasing power in Pennsylvania at the end of the war period.

In summarizing developments in 1943 in terms of the impact of the war upon the Pennsylvania economy, the outstanding fact to be observed was that it was unquestionably a year of great and climactical achievement. Some further advances might be made in 1944, but the chance for shattering 1943 records appeared a slim one. Certainly in terms of benefits from the war the State had not only reached but passed the peak. Relatively in terms of the national war production effort, Pennsylvania had literally gone over the top.

IX. HELP WANTED

THE manpower situation in Pennsylvania in 1943 faced a constantly looming crisis which never quite arrived. The booming demands of war production called steadily for more workers, while at the same time the armed forces were taking away the employees they already had. The institution of Manning Tables and Replacement Schedules by Selective Service prevented workers from being drafted too rapidly, but war plants were still left the enormous task of recruiting replacements.

Some of these new employees came from non-essential industry. As the year began, the U. S. Employment Service was conducting a campaign to persuade men to transfer to war work. Only one out of four was willing to change jobs, however. Some were reluctant to surrender their seniority or to close businesses of their own since no protection was offered them; others were physically unable to perform the skilled work they once had done. The War Manpower Commission in February attempted to hurry this transfer along by abolishing all draft deferments for persons holding a number of non-essential jobs.

The next governmental step affecting Pennsylvania labor was the WMC "labor-freeze" order, effective April 18. This was designed to prevent "piracy"—luring away employees by offers of higher pay. It prohibited any worker in essential activity from changing jobs for higher pay without either a release from his employer or WMC approval. This order was strengthened in June by a provision forbidding workers in essential activities from transferring to non-essential activities, regardless of the wages involved, without a release. In September these controls were tightened still further. The waiting period between jobs, required for a worker without a release, was extended from thirty to sixty days, and persons skilled in one of 149 critical occupations were not permitted to shift jobs even with a release, unless the Employment Service also gave its approval. Other regulations restricted the use of labor advertising. Advertising in other cities had to be cleared through the Employment Service. Publication of wage rates designed to attract workers from essential jobs was forbidden.

Shortage Areas

The manpower situation varied from time to time and from area to area. To meet these fluctuating needs, the WMC made monthly surveys of the labor supply and classified each area into one of four groups.

In Group I the situation was acute; all industries were required to go on a forty-eight hour work week, and further contracts were denied the area. In Group II the labor supply was tight, and there was frequently community action to relieve the situation and prevent the area from moving up into the undesirable Group I. Group III areas had a slight surplus, and Group IV a large surplus.

Within these classifications communities moved up and down from month to month. Chambersburg was in Group I from May to September, and Allentown the following two months. Among the areas in Group II for at least part of the year were Aliquippa, Berwick, Erie, Harrisburg, Johnstown, Lancaster, Lebanon, Philadelphia, Pittsburgh, Pottstown, Reading, Williamsport, and York. Cutbacks in production had dropped both Berwick and Johnstown down to Group IV by the end of the year, while Altoona remained in that classification throughout 1943.

There was a natural tendency for labor to migrate from surplus to scarcity areas. One person out of ten left Lackawanna and Luzerne counties to work elsewhere. On the other hand, this migration frequently resulted in housing shortages in the booming community and consequent dissatisfaction for the worker. The Federal Government, therefore, followed a policy of diverting new contracts to surplus areas as far as possible. Scranton benefited largely from this policy. Through community enterprise several new industries were obtained, which were expected to absorb all the city's remaining unemployed when they reached full production.

Another example of community enterprise in meeting employment problems occurred in Philadelphia. The city was warned in the fall that it was in danger of being placed in Group I. The Philadelphia Chamber of Commerce and the Metal Manufacturers Association of Philadelphia promptly suggested the formation of a policy-making body to study and solve the manpower problem. A Manpower Council, representing labor, management and Federal agencies, was, therefore, set up. By examining the estimated labor requirements of industries in the community, they were able to reduce this demand by 25 per cent, and employment ceilings were established to ration further hiring. Under this plan employers were divided into three classes: A, those permitted moderate expansion; B, firms entitled to replacements; and C, firms permitted to hire only part-time workers, returning servicemen, and persons under eighteen. A similar plan was set up in Pittsburgh.

In their efforts to recruit new workers industries had a varied experience. One Philadelphia firm put on an intensive six weeks advertising campaign in Scranton in the fall of 1943, with the net result of one new permanent employee. Another firm was successful with a scheme for awarding three dollars in war stamps to each employee who recruited a new male worker lasting thirty days. The Armstrong Cork Company called in its advertising department to handle its recruiting publicity. The employment office sign was enlarged, and arrows were placed about the grounds directing people to it. A moving picture about the company was run in the Lancaster theaters, and a trailer showing actual working conditions was sent about the county. The result was a constantly increasing work force.

The manpower shortage appeared to reach its height in August and September as the rising demands of war production neared their peak and the loss of skilled workers to the armed forces began to be felt. In September, too, the temporary help furnished by school teachers and students during their vacations also ended. In October, however, the difficulties attending the drafting of fathers kept draft boards from meeting their quotas, and Selective Service did not take as many workers in the last three months of the year as had been anticipated. Cutbacks in various types of war equipment also aided by releasing workers for other employment. More efficient production methods and longer working hours relieved the demand by getting greater production from remaining employees.

Two other factors in the manpower situation could not be accurately estimated because of the lack of adequate information. In the spring there was a great deal of public discussion on absenteeism. Complaints were made that there had been a substantial loss of production because employees failed to show up for work. There were stories of men loafing in poolrooms instead of staying on the assembly line, or staying out to rest up from week-ends. Investigation revealed, however, that most absenteeism was for justifiable reasons, such as illness or the need of housewives to spend some time on their domestic duties. Labor hoarding was another factor difficult to appraise. It was probably true that some plants did hire workers before they were actually needed to be sure of having them on hand in the future, but it was also true that much of the criticism was based on misunderstanding of the situation. Whatever the facts, it seemed certain that by the end of the year the amount of hoarded labor was at a minimum.

The New Recruits

To meet the needs for increased production and to replace workers lost to the armed forces, about 300,000 persons were added to Pennsylvania's labor force during 1943. Since unemployment had virtually disappeared by the end of 1942, these new employees had to be recruited from the ranks of those who would not be employed in normal times. Housewives, for example, were coaxed out of their kitchens by appeals to their patriotism and the offer of high wages. Women whose husbands were inducted usually had to go to work to earn their living.

Industry had to overcome some of its prejudices, and learn that women could handle many a job, which had been thought exclusively masculine. The Paoli local blossomed out with girl brakemen. Women drove taxicabs and buses, operated street cars. Women repaired railroad tracks, shoveled slag in steel mills, blew glass, operated cranes and lathes, welded ships and riveted airplanes. The only jobs still barred to them by the end of the year were mining coal, oiling machinery in motion, and laying bricks from scaffolding. In war plants one worker out of every four was a woman, while women made up nearly half of non-war employment. This invasion of masculine precincts created problems. New sanitary facilities had to be installed. Lifting jobs were broken down so that women could handle them with machinery. Machines were adapted to the feminine hand. Governmental regulations had to be relaxed. Women had to grow accustomed to non-glamorous safety clothing.

Employers also gradually abandoned racial prejudices. Negro organizations collaborated with State and Federal agencies, as well as the State labor organizations, to encourage the employment of Negroes. Under the pressure of meeting production schedules, plants one by one erased the color line, and the number of Negroes working in the State steadily increased. An outstanding experiment in race relations was Sun Shipbuilding's Yard No. 4, which was manned entirely by Negroes. Negro leaders endeavored to keep these new workers aware of their responsibilities in maintaining production, so that racial prejudice might not reappear.

Employers likewise changed their minds about hiring the physically handicapped. Many such persons were trained and placed by the Rehabilitation Service of the Department of Labor and Industry. The training program was revised to meet the needs of the emergency by shortening the course to provide specialized skills. A wide variety of jobs was opened to the handicapped; they became machinists, welders, draftsmen, inspectors, airplane mechanics, and engineers. Production Line No. 48 in the Williamsport plant of the Aviation Corporation of America was made up entirely of handicapped persons.

As a result of the number of disabled persons hired, employers came to realize that the working efficiency of their physically handicapped employees was as high as, and in most instances higher than, that of normal persons. The rate of sickness, absenteeism and turn-over among the handicapped was less than that of the normal worker. Their accident rate was lower, and the physically handicapped did not require extra service and attention. Blind inspectors for the Jacobs Aircraft Company did 20 per cent more work than persons with normal vision. The deaf proved more productive than men with good hearing in noisy war plants. One-handed welders worked faster than those with two hands. This employer-education offered promise for the future when thousands of disabled veterans would be seeking employment.

Rising Wages

The competition for workers pushed wages hard against the ceiling of the Little Steel formula, by which the War Labor Board attempted to hold all wages to an increase of not more than 15 per cent above the rates paid in January, 1941. The most determined pressure came from the United Mine Workers in a series of work stoppages which occurred from April to November. This was finally settled by a new contract which gave the miners increases of nearly 30 per cent without actually violating the Little Steel formula. Since all advances had to be approved by the War Labor Board, wages did not rise so rapidly as they would have risen without restraint. On the other hand, increases gained by longer working hours and time-and-half-time rates did not require WLB approval, and the average weekly pay-check was 12 per cent larger in December, 1943, than in December, 1942.

In that month the average weekly earnings of all Pennsylvania workers was $39.87. Those engaged in manufacturing averaged $46.17 a week. Among the manufacturing classifications those engaged in producing transportation equipment, which included ships, planes and Army trucks, were receiving the top wages of $57.21, iron and steel workers ranking second with $50.35. Coal miners, benefiting for the first time from their new contract in December, 1943, received an average pay check of $61.97 in the anthracite fields, and $56.83 in the bituminous regions. Industries and trades less closely connected with the war effort paid lower wages.

Labor and management relations in 1943 were complicated by the fact that the government was a third party in wage disputes. Frequently an employer came to a new agreement with his employees, only to have the proposed increases held up for months while they ran the gauntlet of the Federal agencies which had to grant approval. Sometimes workers struck briefly as a demonstration against administrative delay in acting on these increases; at other times disputes between labor and management caused work stoppages. Strikes broke out in war plants, as well as in essential civilian industries. Pennsylvanians at home and in the armed forces denounced these interruptions to production because of their interference with the war effort. The blame, of course, did not rest entirely on the shoulders of labor; both management and government shared the responsibility.

Such disputes, however, were to be expected, with war nerves magnifying grievances everywhere. Actually, management and labor were cooperating better than they ever had before. Reports indicated that the number of strikes was well below the pre-war average, and that Pennsylvania ranked low among the states in time lost from industrial disputes. Despite the occasional strikes, production continued to soar upward all through the year.

Post-War Prospects

As war production reached its peak, thoughts turned to employment in the post-war world. A study, *Pennsylvania Employment: The War and After,* prepared by Dr. George L. Leffler, and Mary Virginia Brown, of the Bureau of Business Research at the Pennsylvania State College, provided a careful analysis of the factors to be considered. Pennsylvania, it revealed, furnished employment for approximately 2,500,000 persons in 1939; by 1943 about 3,250,000 persons were at work. Including an estimate for those in the armed forces, this would mean 1,500,000 persons added to Pennsylvania's labor force at the end of the war. With deductions for those who would remain in the armed forces or set up businesses for themselves, and for housewives who would return to their homes, there would probably be 1,000,000 more persons seeking employment in the State after the war than had been employed in 1939, and even 250,000 more than in 1943.[1]

Pennsylvania, it was evident, could not go back to 1939; the peacetime production of that year would have to be increased 40 per cent to assure full employment in the post-war world. Could it be done? The authors of the State College bulletin believed it could, and proposed a method to accomplish it. Their program set forth three principles: (1) a steadily increasing volume of goods sold at a steadily decreased selling price; (2) a reasonable level of profits for industry; (3) good wages in industry. If labor, management and government cooperated in translating this program into action, Pennsylvania could look forward to the greatest prosperity it had ever known.

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[1] The figures in the two preceding sentences are not given in the State College bulletin, but have been estimated from it and other sources. The bulletin reaches similar conclusions from other data.

X. FARMERS AT WAR

POSTMEN are not the only persons who cannot be stayed by the wind or the weather, if the record of Pennsylvania's billion and a quarter agricultural industry during the second year of the war is taken into account. Perhaps the best summation of the general situation was provided by Dean S. W. Fletcher of the School of Agriculture of the State's great land grant college, the Pennsylvania State College. Speaking before the opening general session of the Pennsylvania State Farm Show at Harrisburg on January 18, 1944, he reviewed Pennsylvania agriculture's war effort in a few well chosen sentences:

> "Pennsylvania farmers have done a magnificent war-time job. In spite of tremendous handicaps, some inherent in our disorganized war-time economy, others probably unnecessary, they have produced food to the utmost. They have had to deal with many Federal agencies. They have struggled with harassing and often conflicting regulations growing out of the operations of the War Food Administration, the Office of Price Administration, the AAA, Selective Service, rationing boards and Internal Revenue. They have produced in abundance in spite of price ceilings, acute labor, machinery and feed shortage, gasoline rationing and daylight saving. They have seen their sons and daughters leave the farm to serve in the armed forces or in war industries. Yet crop and livestock production has been increased. . . . This supreme effort of Pennsylvania farmers is an expression of their loyalty to the American way of life and their determination that this way shall be preserved."

It is hardly necessary to do more than document this statement to provide a comprehensive picture of the war effort of the second largest rural population in the nation in 1943. For the second consecutive year total war dominated agriculture in Pennsylvania. Anxious to contribute to the fullest possible extent to producing food and fiber for the armed forces, for lend-lease and for the war workers at home, the farmers of the State, despite known handicaps from the beginning, made brave plans for increased production all along the line. No person could accuse them of failing to start turning the wheel of every implement of production.

No one knows better than the farmer himself what the pranks of weather and the varying seasons can do to the best-laid plans. During 1942 growing conditions were almost ideal and resulted in "bumper" crops with higher than average yields per acre. Nature was in a smiling mood then, but her temper changed in 1943. The total production of field and fruit crops was 8 per cent under the preceding year and directly instrumental in bringing about serious reductions in milk production and critical shortages in livestock and poultry feeds.

April in 1943 was the coolest on record in the State. May was the wettest in thirty-five years and the following June the warmest in fifty-six years of record. One of the most severe drought periods ever experienced plagued the southeastern counties, one of the richest agricultural areas in the nation, from mid-June into September, which was the driest month on record. A cool and relatively wet October hampered harvesting throughout the State. Under such conditions, production declines were inevitable, regardless of the efforts at an increase. Potatoes and some vegetables registered gains over 1942 in total production through increased acreage, but did not attain the averages of the ten-year period, 1932-1941. Yields per acre were lower for every field crop except hay.

Pennsylvania's 1943 corn crop was 10 per cent smaller than the previous year despite a small increase in acreage, due to a 12 per cent decline in yield. Wheat acreage was slightly less and the yield markedly lower resulting in a 12 per cent loss in production. Other gains were similarly influenced by the generally unfavorable weather conditions. A marked increase of 12 per cent in potato acreage resulted in a 6 per cent expansion of total production despite a lower yield per acre. All fruit crops were short during the year with apple production down 44 per cent from the 1932-41 average, peaches 29 per cent, pears 69, and grapes 15 per cent, according to official tabulations by the Federal-State Crop Reporting Service in Harrisburg. The quality of much of the fruit was impaired by weather conditions, especially the drought.

Unfavorable weather conditions also plagued the vegetable growers of the State. All truck crops in the commercial production areas were from two to three weeks late in planting, though by June the earliest crops were reported as making good growth. The hot, dry weather of August which prevailed throughout the greater part of the State was unfavorable to the later vegetables. The acreage of commercial truck crops harvested for market in the State, excluding strawberries, was estimated by the Pennsylvania Federal-State Crop Reporting Service as 36,240 acres in 1943, an increase of 4 per cent over 1942. Asparagus, cabbage, celery and cucumber acreages were below the previous year, though the asparagus and cucumber production increased. The drop in production of other crops, due to unfavorable weather, however, ranged from 1 per cent for sweet corn to 27 per cent for cabbage. The 1943 strawberry crop suffered a 24 per cent decrease in production. Despite production and acreage losses, the gross returns per acre for virtually all crops were considerably above 1942 due to better prices. The acreage of the four principal crops for processing and canning was 9 per cent over the preceding year with 68,700 acres and their production was valued at $8,099,000.

In the all important field of dairy production, in keeping with the national trend, there was a small decline in Pennsylvania, despite an increase in the number of dairy cows on the farms. The total number of dairy cows in the State at the end of the year reached 924,000, valued at $131,208,000, but a variety of factors were responsible nevertheless for a decline in production. Not the least was again the weather. Drought conditions seriously affected pasturage as well as limiting the production of many supplementary feeds essential to the dairy industry. Shortage of help and high cost of commercial feed were other obstacles. The wholesale price of protein feed, for example, was nearly twice the level of January, 1941, and the quality well under previous standards. Price ceilings constituted an obstacle to the normal ability of the farmer to meet the rising costs of production and thereby discouraged the dairymen of the State. A determined effort was made by Governor Martin and the State Milk Control Board, in cooperation with other dairy states of the eastern area, to convince the Federal authorities of the necessity for revision of dairy ceilings, but without success. In the meantime, despite Federal subsidies, milk production lagged in the State from 3 to 5 per cent behind 1942 with even darker prospects for the coming year.

In some other fields of farm production the picture was a brighter one, mainly because of the inability of the weather to take a toll. An important livestock State, Pennsylvania increased hog inventory at the end of 1943 to over one million head, or some 30 per cent over the previous year despite difficulty in securing feed. There was also an increase in the number of other meat animals, except for sheep and beef cattle. Egg production set new records as the poultrymen of the State devoted more attention to this field in spite of the feed and labor situation and threatened to force prices below profitable production levels. More turkeys were marketed than ever before as a contribution to maintaining traditional Thanksgiving cheer despite the war.

It is evident that Pennsylvania's 169,000 farms were working at capacity in 1943 and would have broken all records for farm crops had it not been for unfavorable weather conditions. This was not the only obstacle, however, overcome by farmers during the year. The labor shortage still constituted a major problem as the draft and the attraction of city war industry continued to threaten the normal supply of farm labor. A survey of Pennsylvania farms by the Farm Management Extension division of the School of Agriculture of the Pennsylvania State College indicated that nearly 3 per cent less workers were available to do at least 1 per cent more work. This problem was met in part through an organized system of recruiting farm labor directed by the Agricultural Extension Department of the Pennsylvania State College under its director, Martin W. Fry. An estimated 85,607 farm workers were recruited of whom 1,658 were year-round workers. Men and women from every walk of life, including thousands of high school students, gave a part-time boost to producing foods for victory. Working harder and longer hours by those already on the farms continued, however, as in 1942, to be the principal means through which the farmer met the need for more help. Ironically enough, the drought by reducing production eased the demand for labor in the harvesting season.

The shortage of fertilizers and farm machinery had begun to loom as a major threat to agriculture in the latter part of 1942. The difficulty increased in 1943 as the WPB allocated every available ounce of metal for tanks and other war *materiel* in order to overcome desperate shortages in fighting equipment and nitrates were found more necessary on the battle front than on the farm. The supply of machinery, for example, was estimated at 30 to 40 per cent of pre-Pearl Harbor quantities. Difficulties in transportation made it hard to get such supplies as were available.

In meeting these problems, the American way of self-adjustment and improvisation in the face of difficulties was never better illustrated. Farmers cooperated as never before in pooling available equipment to secure the maximum use. One of the first, if not the first, cooperative farm organizations to establish a pool for the purchase of the limited amount of allocated farm machinery was set up by the potato growers of Potter County. Extension agents and vocational agricultural services available through the schools and colleges provided practical advice in repair of farm machinery as well as useful hints on ways of increasing soil fertility without resort to commercial fertilizers. Tractors and other implements moved back and forth from dawn to dusk across the fields of Pennsylvania held together on as precarious a basis as an ancient Model T Ford. Intelligent planning of both work and crops was necessarily the order of the day to make the greatest possible use of machinery for the largest number of crops with a minimum loss of time or equipment usage. Agricultural extension representatives in the State reported that demonstrations were never better attended or other services utilized more fully than in 1943 as a majority of farmers sought the latest and best information which would make it possible to produce the maximum with facilities at hand.

"Feeding fighters for '43" was the inspired slogan which dominated the work of the increasing numbers of rural boys and girls who entered into the 4-H club program sponsored by the Agricultural Extension Service in the State. The total enrollment was 21,329, an increase of over 12 per cent over the previous year. Checks indicated that fully 80 per cent of these rural youths had some near relative in the armed services. The slogan had a real meaning to them and needed little dramatization, but they were shown a food budget for one year for a man in the service and how they could help to provide the food to meet that need.

A fighting man is allotted just short of one ton of foodstuffs of all kinds in a single year. At wholesale farm prices this meant in Pennsylvania food worth about $160. A 4-H club member was told that this could be met by the production of one cow, one steer, five pigs, sixty capons, one-third acre of tomatoes or one acre of mixed vegetables. The scheme worked, and at the end of the year it was estimated that in Pennsylvania the 4-H club members had produced enough food to supply at least 4,000 men in the armed forces.

In order to achieve this goal activities were shifted from many worthwhile and long-time projects, such as flower growing and forestry, to vegetable gardening, pig and poultry raising and canning. Girls specialized in addition in the care of children and outdoor cookery to meet emergencies resulting from possible attacks upon the seaboard and the evacuation of women and children into the interior. Fortunately, the bombing or other attacks did not occur, but in the Easton area the training did serve a useful purpose at the time of the gas works explosion.

In addition to contributing to the added production of the foods needed to supply the boys in the services, the club members maintained numerous wartime community activities of the preceding year. Two-thirds of the members are reported as having purchased War Bonds and Stamps to the amount of $176,724. Thirty-eight per cent had aided in salvage drives and collected over a million pounds of salvage materials. The girls helped to prolong the life of farm work clothing while the boys contributed to the repair of farm machinery. Unnumbered boys and girls had made other contributions through assisting in the care of the home vegetable garden, canning its products and assisting not only at home but on the farms of neighbors in planting, caring for and harvesting important crops. 4-H club boys and girls had a busy year and made a real contribution to the war effort.

The vocational agricultural program of the public schools involving the Future Farmers of America again made a noteworthy contribution to the wartime agricultural program of the State. Emphasis continued to be placed on production phases of the work while the farm machinery crisis made farm mechanics and repair work of more than ordinary importance. Increased numbers of adult farmers took advantage of the instruction to learn ways and means of prolonging the life of their equipment. Eight thousand farmers are estimated to have participated in such instruction during the year and nearly four hundred classes were held and for a longer period of time than formerly. At least fifteen thousand individual items of equipment were repaired.

Other phases of the Food Production War Training Program for 1943 brought the total number of classes to nearly seven hundred, providing training for 30,000 persons. Instruction in food preservation, an art lost even in some modern homes in pre-war days, was given under the vocational agricultural program to nearly three thousand persons. An important by-product was the canning of 120,317 quarts of vegetables and fruit and the dehydrating of 3,418 pounds. Agricultural teachers supervised the development of over three thousand victory gardens during the year. Aid in the farm labor crisis was provided by placing over three thousand youth and adults on individual farms during the summer. Nearly six thousand high school students aided in harvesting farm crops.

Future Farmers were active in the various campaigns akin to the war effort in all its phases, including the collection of scrap. Scrap metal amounting to 23,000,000 pounds was collected along with 288,000 pounds of paper, 70,000 pounds of rags and 78,000 pounds of rubber. A sizable proportion of the income received for increased farm production went into the purchase of War Bonds and Stamps. Contributions to the expansion of farm production were material as a few examples will suffice to indicate. Over 6,000 pounds of milk, over 500,000 dozen eggs, over 23,000 bushels of potatoes and nearly 800,000 pounds of pork were produced by the vocational students in 1943 over and above the 1942 production records.

What did the farmer get for his effort beyond the plaudits of an appreciative State and nation? The cash farm income of the State in 1942 was $391,173,000, according to the State Department of Agriculture. Despite decreased production, this figure in 1943 reached $472,952,000, due to the increased value of farm products. Farm leaders point out, however, that this increase was less than twice the 1910-1914 average as compared with an expansion of four and one-half times for factory wages. In the words of Dean Fletcher, "For the first time in a quarter of a century, Pennsylvania farmers have a favorable purchasing power."

What were farmers doing with this increased income? The evidence points to the fact that it was carefully husbanded in accordance with the traditional thrift of the Pennsylvania farmer. Certainly it was not expended in riotous living. Statistics on bank deposits compiled by the Philadelphia Federal Reserve Bank, which includes a majority of the agricultural counties, indicated that individual bank deposits had increased more rapidly in rural than in urban areas. While detailed studies of Pennsylvania farm income and its disposition had not been made, the general evidence led to the conclusion that the typical Pennsylvania farmer was husbanding his increased income with care and a view to its use to reduce debt and establish reserves for the future.

A local survey for Lancaster County prepared for the March 15, 1944, issue of the *Wall Street Journal* by Mr. John C. Truxal of the Lancaster County National Bank indicated that farmers in that important agricultural area were using from 10 to 25 per cent of income for debt reduction. Another 8 to 25 per cent was being set aside for the future purchase of new equipment and improvements. About 1 to 10 per cent was the average investment in War Bonds. The FSA reported that it had in 1943 some 4,200 rural rehabilitation borrowers in Pennsylvania and 360 farm ownership borrowers. Farm ownership loans were being repaid ahead of schedule at a rate of 185 per cent of amount due, and individual loans were also being repaid at a good rate. These facts substantiated the conclusion that the farmers of the State were pursuing a conservative policy of debt reduction and would face the post-war period in sound financial condition, unless trends of the first two years of the war were reversed.

XI. PROBLEMS OF THE PRESS

THE familiar cry of "keep 'em rolling!" has a very special meaning to the men and women who make Pennsylvania's daily and weekly newspapers. By the end of 1943 it had become a definite challenge, but a challenge that was being met with every possible resource at the command of one of the Keystone State's most specialized industries.

War tossed a figurative monkey wrench into the intricate mechanism of the press almost before the sound of explosions died away in the hills of Hawaii, but the difficulties of the first year were but a foretaste of what was coming. Shortages, manpower losses, restrictions—all took their unexpected toll. Advertising difficulties developed, and the increasing scarcity of newsprint forced further adjustments. Meanwhile, thousands of skilled editors, writers, compositors, make-up men, pressmen and circulation men traded the ink-stained garb of their profession for uniforms of the armed services. Whole staffs, in some instances, evaporated almost overnight.

But the greatest story in the history of the modern world was running day and night. Come what might, the press had an obligation to tell that story. Despite everything, the presses of Pennsylvania's newspapers—from the great rotaries of the metropolitan dailies to the clanking flatbeds of the little weeklies—continued to keep the people informed.

The story behind the story of the news was intensely interesting and would form a sizable and colorful chapter when the history of Pennsylvania's role in World War II came to be written in final form.

Continuing the invaluable service to the nation begun as soon as war became an actuality, Pennsylvania's press—numbering approximately 500 publications, daily and weekly—contributed an estimated $10 million in free advertising during the last few months of 1943 alone. This included special display material for various U. S. Government agencies, notably the Treasury Department, plus untold columns of space devoted to other war effort messages.

The plan of selling War Stamps through newspaper carrier boys, originated by the Philadelphia *Evening Bulletin,* was an instant success, and Pennsylvania carrier boys still led the nation in the total volume of such sales. Powerful campaigns backed by every department of the State's newspapers produced thousands of tons of scrap metals, huge quantities of silk stockings, fats and other materials for salvage. Prior to the opening of the Third War Loan Drive, Pennsylvania newspapers lined up behind a campaign to purchase a new aircraft carrier for the U. S. fleet. This fighting ship already had been launched. The press also went "all out" for civilian defense and other home front wartime activities.

These services, given freely and enthusiastically, posed a problem for publishers and editors that the average reader could not fully understand. In varying degrees, it was a problem that every paper had to face sooner or later.

Make-up formulas had to be carefully revised for practically every newspaper, due to ever-tightening restrictions. Peace-time balance was turned topsy-turvy by war's effort on normal proportions and types of advertising. Skillfully, the papers were trimmed and balanced, and only a few were forced to make drastic changes. Some features were thrown out, after a study of "reader interest"; others were reduced in size.

Imperceptible but space-saving changes were made in column widths, type sizes and the use of special typographical "dress." Sports pages were condensed and even the comic strips grew narrower and more compressed. Generally, the result was an even better newspaper than before. Although in many cases traditions and distinctive styles had to be sacrificed, publishers did not hesitate to trim their papers.

In the business offices, the new economy of operation brought other changes. Larger papers reported a gain in advertising linage, especially in classified insertions. Smaller papers experienced a loss in linage, partially made up by an increase in local "house," or manufacturers' goodwill advertising. In every case, the increase in subscription rates proved the literal salvation of the newspapers. Income from circulation, usually a negligible quantity in normal publishing, showed increases of from 20 to 35 per cent from 1940 through 1943. This increase was especially important, since many papers found it imperative to curtail advertising space in order to make room for the heavier volume of important news.

Handling the news and getting it into print became an extremely difficult job for many papers because of the shortage of experienced help. Editorial workers with previous newsroom experience were almost impossible to replace, once lost to the services, and editors were working with staffs made up of one or two "pivots" and a number of untrained recruits. Women took over many of the desks and even found their way into composing and press rooms.

Not only the dailies but most of the 300-odd weeklies of the State managed to meet their regular obligation to the public they serve. The difficulties of the weeklies, although on a smaller scale, were similar to those of their big city brothers. Besides, they had a few of their own. Mortality among the smaller weekly publications reached a peak during the last days of 1942, and, while it continued through early 1943, most of the weeklies still appearing seemed to have a reasonable assurance of survival.

These smaller papers are the real backbone of the Pennsylvania press and provide a living link with the historic past of each of the great city dailies. Each week, great numbers of them were going out to the far-flung battlefronts, where they were eagerly awaited by boys who grew up in the hundreds of little towns where they are published. Their homely fare of "items," seemingly quaint to the city dweller, was fully as important as the drama-packed columns of the metropolitan papers. They were a potent factor in the maintenance of morale among our troops overseas, and as such were rendering an invaluable war service to the entire nation.

The Pennsylvania Newspaper Publishers' Association, from its State office in Harrisburg, directed a large part of the battle for survival still being fought by the press of the Commonwealth. By coordinating the efforts of individual publishers, by the exchange of vital information and suggestions, P.N.P.A. had welded the Pennsylvania newspaper craft into an aggressive and determined group of thoroughly war-minded men and women, whose fellow-citizens of the Commonwealth now realized the priceless heritage and capacity for service of a free and resourceful press.

XII. EDUCATION FOR WAR AND PEACE

IN 1943 the manpower shortage was the most pressing problem in Pennsylvania's public schools, as it was in other phases of Pennsylvania's economic and social life. By the end of the year it was estimated that 3,000 of the State's 63,000 teachers were in the armed forces, while perhaps 2,000 more had left for other reasons. Some of these were women who quit their positions to go with their soldier-husbands; others were teachers who found better-paying and less nerve-wracking jobs. Vacancies were most numerous in the rural districts, where lower salaries were paid. Positions in special fields like mathematics, science, health and physical education, and industrial arts were hardest to fill.

The legislature helped the schools to hold on to their teachers by granting a cost-of-living bonus. Salaries were increased for two years by amounts ranging from $300 to $100 a year; the minimum annual salary was raised from $1,000 to $1,300. Although the legislature failed to mention specifically substitutes who received less than $1,000 annually, the Department of Justice ruled that the increase applied to them also. By decision of the State Supreme Court, teachers in military service lost the half-pay which had been going to their dependents, but the school districts continued to pay their retirement benefits for their years in the armed forces.

Another act of assembly authorized the Superintendent of Public Instruction to issue emergency certificates to fill vacancies when no qualified teacher was available. By the end of the year, 1,160 of these certificates had been issued. Emergency teachers were expected to take refresher courses to improve their knowledge of their subjects. All performed their duties satisfactorily, save for a few industrial arts teachers.

In some cases schools were able to meet the situation by doubling up on their classes. College seniors were used to fill other vacancies. In the State Teachers Colleges a guidance program was set up to direct students to subjects in which there were shortages. Looking ahead to an anticipated increase in school enrollment in 1948, a campaign was also instituted to urge high school students to enter the teaching profession. The campaign was needed, for in 1943 there were less than half as many college students preparing for teaching as there had been in 1938. Of the 1,261 May graduates of the State Teachers Colleges, more than one-fourth were already in the armed forces, and many more were expected to take industrial jobs.

Pupils into Workers

The shortage of teachers might have had more serious effect if the number of pupils had not been declining likewise. By 1943 enrollment in Pennsylvania schools had fallen 10 per cent below 1941. In high schools alone the drop was 14 per cent, as older students found opportunities for employment. Twice as many students obtained work permits in 1942 as in 1941; permissions to work in industry were more than six times the number granted in 1940. Almost 70,000 minors were permitted to stay out of school for work. More than twice as many vacation permits were issued as in 1941; farm labor permissions were up 50 per cent. Although 1943 figures were not available, they were probably even higher.

Selective Service was also taking some of the older pupils, although a boy in his last semester was deferred until graduation. Gallitzin High School closed its senior class two months ahead of time, with more than half the members either working or in the army. Some seniors in their last half year took advantage of the new ruling permitting them to enter college before graduation. In Scranton enrollment was down so much that the city debated suspending fifty teachers.

Even those students who remained in school were helping to solve the manpower problem. In rural districts the opening of the fall term was postponed to permit the students to work longer on the farms. York's William Penn High School developed a plan whereby seniors could alternate a week of school with a week of work at the job for which they were preparing. Other cities employed variations of this system, as the Superintendent of Public Instruction gave it his official endorsement. A survey in Central Pennsylvania indicated that one high school student out of every three had some form of employment. In Philadelphia four thousand students over sixteen were released from school two weeks ahead of time to help out the stores during the Christmas rush. All these hours of work had their effect inside the school room. Students told their teachers that they had not done their homework because they had not had time. The feeling that they were already able to earn their own living made them restless in classes.

Wings for America

The development of the pre-flight courses was "the most remarkable change in the high school curriculum that has ever happened in one year," according to Dr. G. F. Stover, of the State Department of

Public Instruction. These courses, which had begun in the fall of 1942 with an enrollment of 400 students, had expanded by the end of 1943 to include 8,200 boys and girls in four hundred Pennsylvania high schools. The course of study included instruction in mechanics, code, plane identification, navigation, communication and meteorology. Most schools required a knowledge of algebra and physics for those taking a course; some asked a physical examination to make sure those who enrolled for the subject would be able to enter the air force. The course was approved by the State Council of Education as an accredited subject, and accepted as an entrance credit by 90 per cent of the colleges and universities in the State.

The major handicap in setting up the pre-flight program was a shortage of qualified instructors, since few teachers had actual experience in the field or held credits in the necessary subjects of science, mathematics and industrial arts. To increase the number of qualified teachers, eleven Pennsylvania colleges offered summer courses for prospective instructors. In cooperation with the Pennsylvania Aeronautics Commission, the Department of Public Instruction also provided a special two-day course, including ground instruction, a demonstration in a Link trainer, and a half-hour flight in a dual-control airplane. Three schools in the State, York and Darby high schools, and the St. Thomas More Catholic School for Boys in Philadelphia, had a full-fledged course in aeronautics, which was matched only in five other states and the District of Columbia.

Further changes were made in the high school program. Pupils who had completed all but their last half year and were in good standing at the time of induction were permitted to graduate with their class. Authorization was granted to give credit for graduation for correspondence courses taken through the Armed Forces Institute. Acceleration of the high school program was provided for capable students. The content of courses in mathematics, science and social studies was altered in keeping with war needs. More emphasis was placed on geography in secondary schools. Schools appointed guidance counselors, who directed students into preparation for war work or military service. All of these problems had to be cleared through the State Department of Public Instruction, adding greatly to its burdens and necessitating many conferences with educators and school administrators of the State.

Other war activities occupied the time of school students. The construction of model aircraft for the army and navy was completed by the end of the year. The schools took part in the U. S. Treasury Department's "Schools at War" contest, preparing scrapbooks depicting the schools' war activities. State awards were granted to five scrapbooks, one of which was prepared by the one-room Mt. Zion school, near Danville. Students continued to participate in the various salvage drives, and in December began a newly organized campaign for the collection of tin cans.

Training for War

On the college campus the outstanding development of 1943 was the virtual disappearance of the college boy. While the curve of male enrollment had been steadily drifting downward since the enactment of Selective Service, in 1940, it was not until the first months of 1943 that it dived steeply towards zero. By the end of the year there were left only a few students enrolled in such vital courses as pre-medical, a sprinkling of 4-F's, and some boys under eighteen getting a pre-induction taste of a college education. On the average, colleges in the fall of 1943 had one male civilian for every three they had in 1942 and one for every four in 1940, although there was a wide variation from one school to another.

Many of these institutions might have drowned in the sea of financial disaster, if the Federal Government had not tossed them a life preserver in the form of a variety of training programs. The U. S. Public Health Service arranged to educate cadet nurses at state teachers colleges in Bloomsburg, Edinboro, Indiana, Kutztown and Mansfield, as well as the University of Pittsburgh and other institutions. The Civil Aeronautics Administration's pilot training program, already in existence for four years, was expanded and renamed the War Training Service. Among the colleges which provided this training were Albright, Bucknell, Franklin and Marshall, Muhlenberg, Thiel, the University of Scranton, and State teachers colleges at Bloomsburg, Edinboro, and Lock Haven.

The most important training contracts, however, were those offered by the armed forces. The Navy set up its V-12 program in eight Pennsylvania colleges: Bucknell, Franklin and Marshall, Muhlenberg, Penn, Penn State, Swarthmore, Ursinus and Villanova. Pre-dental, pre-medical, and engineering instruction was given to potential Navy officers. The course of study was divided into three terms sixteen weeks in length each year. Engineering students received six to eight terms of training; the others were sent on to professional schools at the end of their fifth term. At Bloomsburg, Lock Haven, and other institutions, the Navy also had a V-5 program, providing four months of intensified instruction for prospective pilots. The Army Specialized Training Program was somewhat similar to the V-5 program, except that the Army divided its year into four terms of twelve weeks each.

In addition to the courses offered by the Navy, the Army also provided instruction in meteorology, foreign areas and languages, and personnel psychology. These courses were offered at Carnegie Tech, Drexel, Haverford, Lafayette, Lehigh, Penn, Penn State, Pitt, Temple and Washington and Jefferson. The University of Pittsburgh was one of ten in the entire country to train officers in the Civil Affairs Specialist Training Division. Outside the A. S. T. P., which was designed to train officers, was the Army's Postal Service School for enlisted men on the West Chester campus. Lafayette was also preparing a group of boys for the entrance examinations at West Point.

Probably the largest program of all was the Army Air Force's college training for air-crew students. This provided five months of general training in such subjects as history, English, mathematics, and physics for prospective fliers. Unlike the A. S. T. P., it led to a commission only if the student later qualified as a bombardier, pilot, or navigator. Those who failed to qualify were given other flying jobs as non-commissioned officers. Among the Pennsylvania colleges which received college training detachments were Albright, Allegheny, Clarion, Dickinson, Duquesne, Geneva, Gettysburg, Grove City, Kutztown. Lafayette, Penn State, St. Vincent, Slippery Rock, Susquehanna, Waynesburg, and two junior colleges, Dickinson Seminary, Williamsport, and Bucknell, Wilkes-Barre center.

All these students were in uniform, subject to military discipline. They were usually allowed off the "post," which was the military name for the campus, only over week-ends. They underwent a rigorous physical training program, along with military drill. Navy men were allowed to substitute intercollegiate sports for physical training, but Army men were not. A permanent party of officers and enlisted men handled administrative matters, while the educational program was left up to the college authorities.

Problems of Conversion

Receiving these military trainees created a war-conversion problem for the colleges. Frequently they found themselves with more students than ever before. Lafayette, for example, had a total enrollment 50 per cent greater than in 1942, although its civilian student body was down 70 per cent. The men's dormitories would not hold all these trainees at most colleges. The schools generally took over the fraternity houses, which the fraternities had had to give up because of their loss in membership. Waynesburg turned over its girls' dormitory to the Air Force students, but Lebanon Valley preferred to keep its women students in their own quarters and declined a training contract. Muhlenberg leased several buildings from nearby Moravian, which had no trainees of its own. Chapel and dining-room schedules had to be rearranged. Facilities too had to be converted. Sometimes professors were shifted from one department to another; new instructors were hired when they could be obtained.

Side by side with the military training, the civilian curriculum went on. Schools with A. S. T. P. or Navy V-12 programs generally modified their terms to fit into the military schedule. Other colleges continued their accelerated program, usually with three terms a year, although it no longer served its original purpose of graduating students before they reached the induction age. In general, Pennsylvania educators seemed agreed that acceleration would disappear at the end of the war, since results had indicated that it was suitable only for emergencies.

Courses continued to be pronouncedly influenced by the war. Almost every college had instituted some new subject connected with the war. Bryn Mawr and Wilson offered special training for post-war reconstruction. Beaver had a two-year victory course, designed to permit students to enter war work and return to college later for their degree. Standard courses were altered in content and presentation; at West Chester even the Latin of Livy was tied in with the war. There was increased interest in mathematics, science, and Spanish. The new requirement that all teachers have a course in American and Pennsylvania history increased enrollment in such classes. A few studies were dropped; Albright suspended its course in business administration because of declining enrollment. The intensified physical fitness program continued, although there were few men left to be prepared for induction.

Student activities were much altered. Colleges without Navy trainees generally had to drop intercollegiate athletics, though some managed to have a basketball team. At Gettysburg the sororities moved into vacated fraternity houses. Students, as well as faculty members, took part in activities of the USO, the Red Cross, civilian defense, War Bond drives and salvage campaigns. Many of them relieved the manpower shortage by part-time jobs.

Medical and dental schools were over-crowded with students, most of them already in the Army or Navy. Theological seminaries were preparing chaplains. Law schools almost vanished. The Philadelphia College of Pharmacy and the Philadelphia Museum School of Industrial Art lost half their students. Women's colleges were relatively little affected by the war. Their enrollment on the whole was unchanged. Only a few accelerated their own programs, but they generally permitted students to speed their graduation by taking summer courses elsewhere.

Almost every college faced the same administrative problems. Maintenance workers were had to get and keep. Penn State had to advertise as far away as Harrisburg for employees. Other colleges hired students. Despite the loss of teachers to the armed forces and government service, there was no shortage of instructors except in the special fields of mathematics and science. The rising cost of living sent operating expenses soaring upward. At the same time a decline was reported in revenue from endowments. Income from tuition was off sharply in those institutions depending on men students, although governmental training contracts helped to make up this loss.

The full story of the colleges' contribution to the war effort could not yet be told, since a veil of secrecy still hung over most of the research projects that were being undertaken. In the Army and Navy were serving thousands of former students and faculty members, both men and women, ranging in rank from private to general, from apprentice seamen to admiral. Many colleges had gold stars shining on their service flags. Scores of professors were serving the government in civilian capacities.

Training for War Production

A vital contribution to war production was made by the colleges through the Engineering, Science and Management War Training Program. This program began in the summer of 1940 as Engineering Defense Training to provide short engineering courses to meet the need arising out of the demands for defense production. In 1941-42 training in science and management was added, and the program reached its peak in Pennsylvania.

Eighteen colleges in all took part in the program. Most of the extension work was carried on by Pennsylvania State College, which conducted classes in 178 centers. These courses were set up to meet the needs of local industries. Classes were held in high schools or elsewhere in the community or even in the plants themselves. A staff of instructors had to be built up to a peak of almost four thousand. Laboratory and library facilities were provided.

These courses proved invaluable in training skilled workers for war industry. A class of twenty-two in engineering was organized in March, 1942, at Archbald, near Scranton. Sixteen of the students were unemployed. A year later six were in the armed forces, and the rest were all doing war work. In February, 1943, Consolidated-Vultee asked for assistance in training engineering personnel for its new airplane plant. Twenty-five women in non-essential occupations were enrolled for a course in aircraft drafting. Nine weeks later twenty-four of them went to work in the Vultee plant. When the York Corporation needed draftsmen, twenty-three girls were recruited from the just-graduated high school classes of the vicinity, and a month later twenty of them went to work for the York firm.

These were only a few examples of types of service performed. In the first three years of the program 186,739 persons were trained for jobs in war industry, one-sixth of the number in the entire nation. Surveys indicated that 99 per cent of those who completed the course found employment. By the end of 1943 enrollment had declined considerably, because it was no longer possible to find enough qualified persons to train.

Other training programs experienced similar decreases. The Pennsylvania State School of Aeronautics in the State Farm Show Building was closed down entirely on December 4. Through this school, which had been organized and administered by the State Board of Vocational Education, courses had been offered in every phase of training required in the maintenance and repair of aircraft. Its graduates totaled 12,330 persons, ranging in age from seventeen to seventy; at one time three out of every four trainees were women. At the conclusion of their course they went to Middletown Air Depot and its sub-depots up and down the Atlantic Coast to handle the multitudinous activities of the Air Service Command.

Enrollment in the War Production Training Program, conducted by the Department of Public Instruction, was only about one-half what it had been in 1942. Two-thirds of these were persons already employed, seeking to improve their skills. The total of 470,000 persons trained by the end of 1943 explained why War Production Training was declining. Like the other training programs, it had functioned so well in the emergency that it had worked itself out of a job.

XIII. LIFE GOES ON

THE rumble of the artillery below Naples, the thunder of the battleships off Tarawa, echoed in every Pennsylvania home. The effects of the war were being felt in many ways in 1943, not all of them unpleasant. On the economic side the average Pennsylvanian was earning more money than he ever had before, more even than he had ever dreamed of making. Factory workers were getting $45 a week instead of the $25 they had received in 1939. Unionless white collar workers had not fared so well, but most of them had gained substantial increases. Although there were a few important groups, such as college teachers, librarians and ministers, with incomes little changed from 1939, the average income in Pennsylvania was the largest ever.

A good deal of it was being spent. Retail sales in Pennsylvania in 1943 were the highest on record, and all that kept them from going higher was the lack of goods to buy. There were tales such as that of the war worker scorning a $50 handbag with the question, "Is this the best you have?" But, if a man had been yearning for years to give his wife or sweetheart the best there was, who could say him nay when he could at last afford it? There were other signs that people were demanding value for their money; when retailers laid in stocks of Christmas trees at exorbitant prices, they had many of them still on their hands on December 25.

Mr. and Mrs. Pennsylvania had confounded the economists by not pouring their dollars into the predicted flood of inflation. Furious spending had taken second place to careful saving. Most persons were putting ten per cent of their income into War Bonds, and many were paying off old debts. Much of the money which might have blown the lid off prices was taken up by heavier income taxes. The new war rates were applied for the first time in 1943, and taxpayers were startled when they computed their March 15 return. Although three-fourths of this tax was forgiven, the net effect was actually to increase the rates. Payments by withholding, 3 per cent for the first six months, then 20 per cent, made the burden somewhat easier to bear.

The rising cost of living pressed hardest against those who had not benefited from the war boom. Fortunately, rationing and price control had held the rise to 25 per cent from 1939, according to official figures. They held back inflation and insured to all a fair share of scarce goods.

Life Can Be Miserable

Rationing, however, could not disguise the fact that the civilian economy scraped bottom in 1943. Even with the greatest food production on record, there was not enough to give every one as much as he wanted. In 1942 two imported foods, sugar and coffee, had been rationed; now most of our foods produced at home went under the rationing program. The new program had to be far more complicated than the simple coupon system used for sugar and coffee; it introduced the Pennsylvania housewife to blue and red points. The blue points were used for processed foods; that is, canned, dried, and frozen fruits and vegetables. Red points were good for meat, butter and other fats; canned milk was later included. Housewives had to figure their purchases in points as well as dollars, and found that they could not trust their inexperienced husbands with the marketing. Alarmed at the prospective shortage, Pennsylvanians answered the call for Victory Gardens. The food they produced went far to prevent the threatened famine, and permitted a reduction in point value in the fall. Ration books were used up rapidly under this program; by the end of the year consumers were carrying No. 4. Red stamps had faded to brown, and blue stamps turned to green, although they were still known by their original colors.

Except for the grocers, who had to put in long hours counting stamps, food rationing had turned out to be much less severe than expected. The howls of protest which rose at first against the scanty meat allotment gradually died away, as it was discovered that non-rationed fresh fish and poultry could be substituted for roasts and steaks. Likewise, fresh fruits and vegetables served instead of canned. Some families dined out occasionally to save their ration points. The chief effect was to increase food costs, since substitutes generally were more expensive. Those who had special needs for meat, such as for sandwiches in lunch boxes, often obtained extra points from their more fortunate neighbors, although this was technically illegal. Even at sixteen points a pound, butter was hard to get, and housewives learned how to color oleomargarine; on the other hand, coffee came off the ration list during the summer.

Clothing continued plentiful, although shoes were put under rationing in March. The allotment of three pairs a year was more than sufficient for the average man, who often had to turn over his coupons to wife or daughter. The expected shortage of wool did not materialize, and cuffs reappeared on men's trousers. The wool abundance made suits more popular for women. The quality of women's dresses deteriorated, and low-priced lines disappeared. Women who made their own found their choice of materials strictly limited. Those who still had nylon stockings hoarded them carefully, but rayons were improving.

Going, Going, Gone . . .

Warm clothing was more important, since homes and offices were colder, especially in eastern Pennsylvania. In the winter of 1942-43, oil-burner owners shivered, as their fuel oil purchases were curtailed. Some converted their furnaces to coal, only to discover in the fall of 1943 that they could not get anthracite. Deliveries of hard coal were reduced by one-eighth. Those who had been buying from truckers were particularly hard hit, since many of the truckers had quit and the regular dealers had coal only for their usual customers. Some changed fuels, and struggled with instructions on using unfamiliar bituminous.

Almost all of the home appliances which were synonymous with the American standard of living were either scarce or non-existent. Electric refrigerators, washing machines, irons, stoves, mixers, vacuum cleaners, sewing machines, percolators—all were no longer available in 1943. Newlyweds had to buy this equipment second-hand or do without; already established households tried to make what they had last. Appliances which broke down were usually out of service for a long time, because repairmen were either in the army or rushed with work. Only a few expensive radios were still on sale at the end of 1943, and new tubes were hard to get. Even such lowly articles as pipe-cleaners and bobby pins were unobtainable.

Old John Barleycorn came in for his share of grief during the year, too. The 579 State Liquor Stores, operated by the Pennsylvania Liquor Control Board, ran into progressive and eventually overwhelming troubles in the late summer and early fall of 1943. Stocks of whiskey had dwindled nearly to the point of non-existence by September, with most of the hard liquor going to retail licensees and the few persistent customers who happened to be on hand when State Stores received their meager allotments.

Throughout the State, thirsty citizens begged for a rationing system to alleviate the condition. A voluntary rationing plan had been in effect for a full year, under which customers were allowed to purchase only two bottles at a time. Retail licensees likewise had been placed on a quota basis. Unfortunately, many purchasers obeyed the letter of the regulation while ignoring the spirit of it. As a result, scarce whiskeys disappeared almost as soon as they were placed on sale, with unscrupulous purchasers making the rounds of State Stores in a wide area.

The majority thus soon found it impossible to buy even a single bottle of liquor. At this point the clamor started, and was taken up by the press. By November 15, the State Liquor Control Board had worked out and inaugurated a strict ration system, utilizing War Ration Book No. 3. The first ration period extended to January 1, 1944, during which each registered purchaser was entitled to buy one-fifth gallon and one pint of whiskey, upon the presentation of his or her ration book. The book was stamped to denote purchase, and record of the transaction was kept by the store.

The War Strikes Home

Shortages in the home were felt more in 1943, since it was harder for the average Pennsylvanian to get away from it. When summer came, the usual time for loading the family into the car and driving far away, the stringency in the gasoline situation prevented even the short trip an "A" book would have permitted. The pleasure-driving ban was lifted in the fall, and "A" book allotments raised from six to eight gallons a month, still not enough for a trip of any length. Traveling by train or bus was almost as impossible with transportation facilities crowded with soldiers on furlough as well as ex-motorists. Commuters had the same problems. Those who worked at essential jobs could form car pools and get gasoline; people whose work did not fall into any of the favored classifications could legally obtain gas for a commuting distance of no more than fifteen miles. As tires wore thin and gas grew scarcer, more and more of the commuting autos went off the road. Commuters moved closer to their work or shifted to trains and found hours added to their day as the railroads were delayed by war-time difficulties.

Pleasure-driving was not the only form of recreation to suffer from the war. Most amateur baseball teams had to give up, although the larger professional leagues in Pennsylvania managed to keep going. Golfers and tennis players were hampered by the rubber shortage.

About all these difficulties of wartime living, Pennsylvanians exercised the great democratic privilege for which men were fighting and dying overseas—the right to grumble and criticise the government. On street corners, in clubs and firehalls, men turned from mapping global strategy to analyzing mistakes in the manpower program. Housewives leaned over back fences to discuss the shortcomings of rationing. Although Axis leaders might wishfully interpret this grumbling as a sign of American disunity, it meant, if anything, only a dissatisfaction with the domestic administration of the war.

The only indication of any war-weariness was the organization of a "Peace Now" movement in a Philadelphia hotel on July 11, 1943. While this organization had several leaders who had some connection with Pennsylvania, it did not in any sense represent public opinion in the State. The people as a whole were determined that this war should be fought out to a victory that would insure the world freedom from oppression at home and aggression from abroad. In 1943, this was a feeling, rather than a program. Pennsylvanians had not yet made up their minds how this goal should be attained, but it was a healthy sign that they were already debating the proper route by which to reach it.

They wanted to be sure of the fruits of victory because they were paying a high price for it. The price was not measured in terms of shortages of civilian goods—these were mere trifles, compared to life in the foxholes; the real cost was being paid in mental and spiritual suffering. In every Pennsylvania home there was the ever-present consciousness of some friend or relative facing death, the anticipation of that heart-sinking telegram from the War Department. To some thousands of mothers, wives, and sweethearts there came in 1943 the dreaded news that a loved one would never return. The others, knowing that thousands more such messages must come before the war could be won, could only hope that the news would not come to them.

It was in part thoughts such as these which made Pennsylvanians so generous to the soldiers who were stationed in their midst. There were thousands of them—just how many could not be told officially. In cities near military centers streets took on the dominant hues of blue and brown. Soldiers and sailors on leave strolled aimlessly through unfamiliar towns, looking for recreation. For these homeless men, seeking to make the most of their brief leisure hours, Pennsylvania offered some form of organized entertainment in 52 communities. The six member agencies of the United Service Organizations conducted 42 service units; local groups of citizens operated another 54. Of these 96 units, 67 were complete service clubs. Harrisburg alone had thirteen different organizations offering soldiers free entertainment.

Boys and Girls Together

To support the USO Pennsylvanians had contributed nine million dollars in three years. They had also given untold hours of their time as volunteers. Philadelphia's labor unions constructed a pavilion on Reyburn Plaza and operated it in conjunction with the USO. Harrisburg had a floating dance boat for the servicemen, believed to be the only one of its kind in the country. The Salvation Army in Philadelphia handed out seven million doughnuts during 1943.

The USO clubs also helped to hold down the rising rate of juvenile delinquency by providing a recreation spot for the soldier and his girl friends. One of the problems which worried both anxious parents and military authorities was the appearance of the V-girl. She was the uniform-crazy, teen-age youngster who roamed the streets with her friends, looking for pick-ups. She was a symptom of the nervous, reckless excitement-seeking of wartime. Often her parents were both working, leaving no one at home to supervise her; she had the independence which came with a job of her own. Her younger brother was also restless, and sometimes tried petty theft for the thrill. Arrests of boys under sixteen in Philadelphia increased 16 per cent in the first nine months of 1943, as compared with the same period in 1942; arrests of girls under sixteen increased 72 per cent. Dauphin County reported 319 cases of juvenile delinquency in the first ten months of 1943, compared with 91 in all of 1940.

Philadelphia, Pittsburgh, Butler, and other cities experimented with a curfew for juveniles to keep them off the streets at night. Child care centers sheltered youngsters with working parents. The use of playground facilities was expanded. Schools appointed guidance counselors to confer with problem children, and welfare agencies cooperated in attempting to solve the problem.

The Brighter Side

Welfare agencies had other problems lightened by the manpower needs of war industry. Relief rolls continued to shrink, as even persons normally considered unemployable found work. At the close of 1943 only 234,000 persons in Pennsylvania were dependent upon public aid, or one person out of forty. This represented a decline of 87 per cent from February, 1939, 63 per cent from December, 1941, and 38 per cent from December, 1942. This was probably an irreducible minimum; 82 per cent of those receiving aid were either too young or too old to work, and 5 per cent were blind. Even the 30,000 persons granted general assistance were in large part unfit for employment because of some physical or mental disability. In a few instances, shutdowns in civilian production forced some persons to ask relief temporarily, but they usually soon found other work. Illness or accident to the wage-earner was responsible for putting some families on the relief rolls. Another indication of the lack of need for unemployment relief was the closing of the WPA early in 1943.

The change in the types of assistance granted caused a shift in purpose in the public assistance program. Where before the primary task had been to determine whether a person was eligible for relief, the major concern in 1943 was to provide some measure of security for persons unable to support themselves and make them fit for employment wherever possible. Relief recipients suffered more than any other class from the rising cost of living; although they were granted an increased food allotment in June, a survey by the Department of Public Assistance in December showed that the maximum allowance was well below the amount needed for minimum subsistence. They gained, on the other hand, from an act of the 1943 Legislature which authorized special grants to relieve suffering and distress. This permitted more adequate medical care, and often resulted in restoring an individual's employability.

The medical care program of the Department of Public Assistance met with some difficulty because of the scarcity of doctors. One physician out of every three in Pennsylvania had joined the armed forces by the end of 1943; likewise, one dentist out of every four was in military service. Recruiting of these medical men was being carried out by the Procurement and Assignment Service, operating under the War Manpower Commission. It functioned through state and local committees of leading doctors, who classified doctors in each community as essential or available for military service. All those over 45 were automatically essential; younger men were certified as available only when it was believed that their leaving would not endanger the health of the community. While the Procurement and Assignment Service had no authority to compel a physician to accept a commission in the Army or Navy, any one who rejected the proffered commission would lose his occupational deferment under Selective Service. A similar system provided dentists for the armed forces.

"An Apple A Day—"

Although there was still one doctor for every thousand persons in the State as a whole at the end of 1943, a ratio well below the one to 1,500 which the Army considered adequate, there were areas in Pennsylvania where the number of doctors was dangerously low. Eight Pennsylvania counties were 50 per cent or more above the Army's safety ratio. Sullivan County was the chief danger spot with only one doctor to every 5,000 persons. Shortages in Lycoming, Northumberland, Union, and Snyder were probably due in part to influx of population caused by the development of the ordnance works in that area. Armstrong, Centre, and Susquehanna were other counties in the danger zone. While the Procurement and Assignment Service theoretically could assign doctors to those shortage areas, physicians in general were reluctant to leave established practices to move to a new community, and some who did go to scarcity locations were rebuffed by local doctors who resented a newcomer's taking over the practice of a man who was serving his country.

Several steps were taken to increase the number of doctors. An act of the 1943 Legislature permitted the State Board of Medical Education and Licensure to issue temporary certificates to doctors licensed in other states without requiring them to take the usual examinations. The course of study in medical schools was accelerated, and the period of internship was shortened. Nevertheless, the number of doctors was strictly limited, and physicians had to ration their services. They asked patients to come to their offices whenever possible, and not to call on them unless help was really needed. With proper cooperation from the public, they believed they could keep Pennsylvania's health up to par.

Only about one nurse out of eleven had joined the armed forces by the end of 1943. These had been recruited by local committees of the American Red Cross in campaigns which intensified each year, until by 1944 nurses, too, were being classified in 1-A, as available for military service—although, of course, they could not be drafted. To meet the demand, student nurses were being trained in unprecedented numbers. In this training, Pennsylvania was taking a leading role, since it had 126 nursing schools, more than any other state. These schools were expanding their facilities to train half again as many nurses as in normal times. The U. S. Cadet Nurse Corps, which provided Federal aid to student nurses, was expected to encourage their enrollment, although it was set up too late to have much effect in 1943.

The departure of doctors and nurses for the armed forces was most keenly felt in the hospitals. Their maintenance workers, too, were being drawn off by high wages in war plants. Equipment was hard to obtain, and rationing restricted the use of food. At the same time the expansion of the hospitalization program, higher incomes and the increased birth rate combined to make hospitals busier than ever. By cutting down on "luxury services" and enlisting the aid of local community organizations, however, they managed to take care of all their patients and even meet the demands of emergencies like floods and train wrecks.

The Women Take Over

War is no longer strictly a man's business, and during 1943, Pennsylvania's women—along with their sisters throughout the nation—went in for it with a vengeance.

Not only did they make a wholesale invasion of the shops, factories and mills vacated by the men who received "greetings from the President," but they also seized an unique opportunity to jump into the armed services. Within a year after Pearl Harbor, women of the Keystone State were wearing the uniforms of the WAAC, the WAVES, the SPARS (all auxiliary service arms) and those of a variety of civilian service groups.

In 1943, the WAAC became the Women's Army Corps, with full status as regular Army of the United States personnel. Although some of the original enlistees dropped out at the time of the changeover, additional enlistments soon brought Pennsylvania up to par. Also in 1943, many of the State's younger women enlisted in the newly created Marine Corps auxiliary.

By this time, many of the WAC members were serving overseas with the large contingent landed in North Africa following the successful invasion. Many more arrived in England to implement the staff work of the Second Front armies, and when the American forces moved on across Sicily into Italy, a Pittsburgh WAC, Private Lora O. Howieson, was the first female soldier to set foot on Mussolini's former stamping ground.

WACS also turned up in the Pacific area early in 1944, the first group arriving in Hawaii during the latter part of March.

Pennsylvania likewise was well-represented in the military nursing services, both Army and Navy. Lieutenant Gertrude Irwin, of Ligonier, Westmoreland County, was the first American Army nurse to die in Africa during World War II. Early in 1944, Lieutenant Carrie Sheetz, of Harrisburg, Dauphin County, met death on the Anzio beachhead south of Rome. Several Pennsylvania nurses were in the group serving on Bataan and Corregidor, some of whom were successfully evacuated. Others presumably were captured by the Japanese forces. Large contingents of Pennsylvania nurses subsequently sailed for duty in Australia and the South Pacific bases.

The Keystone State sent other women to the battle zones in the persons of volunteer Red Cross and other welfare workers, plus a few members of special entertainment units recruited among the professional theatrical people.

On the home front, the picture of women at war was most complex. They flew airplanes for the Army, ferrying fighting and other combat aircraft between domestic stations (WASPS and WAAFS); they took to the air for regular patrols of the coastal areas, wearing the uniforms of the Civil Air Patrol; they performed a number of semi-military duties with the Auxiliary Women's Volunteer Service; they mounted guard in aircraft spotting stations across the Commonwealth; they took over much of the detail work of the Civilian Defense organization; they worked for the Red Cross at a multitude of wartime tasks; they served as "Grey Ladies" at veterans' hospitals and performed invaluable duties as nurses' aids in civilian hospitals.

Added to these women in uniform were the hundreds of thousands who put in long days of hard work in factories, mills, offices and even on the railroads; those who knitted, sewed and daily accomplished a myriad of tasks directly or indirectly connected with the war effort. And perhaps the most important of all their many works of service were the millions of letters they kept flowing to the fighting fronts, by day and by night.

APPENDIX A. PENNSYLVANIANS AWARDED CONGRESSIONAL MEDALS OF HONOR

1. Chief Boatswain Edwin J. Hill, born in Philadelphia, October 4, 1894, killed at Pearl Harbor, December 7, 1941, while attempting to help maneuver his ship out of the bombed area. His citation read in part: "During the height of the strafing and bombing, he led his men of the line handling details of a warship to the quays, cast off the lines and swam back to his ship. Later, while on the forecastle attempting to let go the anchors, he was blown overboard and killed by the explosion of several bombs."

2. First Lieutenant Mitchell Paige, U. S. M. C., born in Charleroi, Washington County, August 31, 1917, resident of West Mifflin, Allegheny County. His citation read in part: "For extraordinary heroism and conspicuous gallantry above and beyond the call of duty while serving with the Second Battalion, Seventh Marines, First Marine Division, in combat against enemy Japanese forces in the Solomon Islands area on October 26, 1942. When the enemy broke through the line directly in front of his position, Platoon Sergeant Paige, commanding a machine gun section with fearless determination, continued to direct the fire of his gunners until all his men were either killed or wounded. Alone, against the deadly hail of Japanese shells, he manned his gun, and when it was destroyed, took over another, moving from gun to gun, never ceasing his withering fire against the advancing hordes until reinforcements finally arrived. Then, forming a new line, he dauntlessly and aggressively led a bayonet charge, driving the enemy back and preventing a break-through in our lines." For this gallantry Paige, who had enlisted in the Marines in 1936 on his 19th birthday, received his commission. He later took part in the landings on Cape Gloucester, New Britain. After 26 months overseas he returned to this country in June, 1944, and was welcomed home with an elaborate celebration and a gift of $3,000 in war bonds. Paige is at present undergoing treatment for malaria contracted in the South Pacific.

3. Major Jay Zeamer, born in Carlisle, resident of Orange, N. J., received the award for a reconnaissance flight over Buka Airdrome on Bougainville Island on June 16, 1943. Although badly wounded, he remained at the controls of his plant until both arms and both legs were paralyzed. He was recovering from his wounds according to latest information.

4. Second Lieutenant Joseph R. Sarnoski, born in Simpson, Lackawanna County, January 30, 1915, killed on the same mission on which Zeamer was wounded. Bombardier on the plane, he continued to fire his machine gun after he had been fatally wounded, and brought down a Jap plane. One of a family of 16 children, "Joe" Sarnoski had developed an interest in aviation through building model planes. He also studied music and enjoyed outdoor activities, such as swimming, skating, baseball, and hunting. After he graduated from Fell Township High School, he joined the Civilian Conservation Corps. When he was 21, he enlisted in the Army, and in 1940 became a bombardier instructor. Sent to Australia after war broke out, he applied for combat duty and took part in numerous missions, including the sinking of the 22-ship Jap convoy in the Bismarck Sea. He left a widow, the former Marie Maddox, of Richmond, Virginia.

5. Private James W. Reese, Chester, 23, killed August 5, 1943, at Mt. Vassillio, Italy. Threatened by German attack, he ordered the members of his unit to retire to a safer position, then attacked a machine-gun nest single-handed with his mortar. With only three rounds of ammunition left, he scored a direct hit and wiped out the nest. Abandoning the mortar, he seized a rifle and continued to advance and inflict casualties on the enemy until he was killed.

6. Major Ralph Cheli, born in San Francisco, resident of Bethlehem. While leading his formation in a mission against a Jap airfield at Wewak, New Guinea, on August 18, 1943, he was attacked by a force of enemy interceptors, which set his plane on fire two miles away from the target. Rather than disrupt his formation by parachuting to safety, he continued his mission. His citation said: "From a minimum altitude, the squadron made a devastating bombing and strafing attack on the target. The mission completed, Major Cheli instructed his wing man to lead the formation, and crashed into the sea." He was subsequently reported a Japanese prisoner. While attending Lehigh University, he had married a Bethlehem girl, Geraldine Reilly.

7. Technical Sergeant Charles E. Kelly, Pittsburgh, now 24, received the award for gallantry on September 13, 1943, at Altavilla, Italy, shortly after the landing at Salerno. After making two patrols under fire, he volunteered for a third mission and knocked out machine-gun nests with a Browning automatic rifle. Surrounded in a building the next morning, he wiped out another nest in a church steeple with a 37-mm. gun, then picked off snipers with his Browning as his captain

spotted them. The captain counted 40 dead snipers. Having burned out four automatic rifles in this process and used up all his ammunition, he threw hand grenades until they were gone and then tossed 60-mm. mortar shells. Finding more ammunition, the detachment held out until nightfall. Then Kelly volunteered to cover the retreat with a bazooka, and held out until all the men had got away. On his way back he found an abandoned 37-mm. gun and fired that at the enemy until he had used up all the shells on hand. He was later awarded the Silver Star for subsequent heroism on the Rapido River below Cassino on January 21 and 22, 1944, and in December, 1944, was given the British Military Medal. In April, 1944, he returned to the shabby alley home on Pittsburgh's North Side, without electricity or bathroom, which had sent seven boys into military service. He received an overwhelming welcome from the city and $40,000 for movie and magazine rights to his story.

8. PRIVATE FIRST CLASS ALTON W. KNAPPENBERGER, born in Coopersburg, Lehigh County, December 31, 1923, resident of Spring Mount, Montgomery County. In action in front of Cisterna on the Anzio beachhead, February 1, 1944, he single-handed held back more than two companies of Germans, and delayed the enemy attack for two hours. With his Browning automatic rifle he knocked out two German machine guns, killed two grenade-throwers, and drove off an anti-aircraft truck. When out of ammunition, he crawled fifteen yards to remove bullet clips from the body of a dead soldier. His commanding general, in giving him the award, called him a one-man army. He received the award April 7, 1944, and returned home on August 8 for a 21-day furlough. He was given numerous presents and a purse of $1,000 to make up for the loss he suffered when his pocket was picked in Naples. He is five feet four inches and weighs 130 pounds.

9. STAFF SERGEANT ARCHIBALD MATHIES, 25, born in Scotland, resident of Finleyville, Washington County. An engineer-gunner on a Flying Fortress returning from an attack on Leipzig February 20, 1944, with the pilot dead and the co-pilot wounded, he and the navigator volunteered to try to land the plane to save the co-pilot's life, rather than parachute to safety. All three were killed in the crash. The medal was given to his mother, Mrs. William J. Mathies, on July 23, 1944. He was the first member of the United Mine Workers to receive the Medal of Honor. The new colliery of the Pittsburgh Coal Company, his former employer, has been named the Mathies Mine in his memory.

10. Private First Class John W. Dutko, born in Wehrum, Indiana County, resident Homer City, R. D. 1, killed May 23, 1944, at the age of 28, near Ponte Rotte on the Anzio beachhead. Advancing through heavy German fire, with a Browning automatic rifle, he wiped out a machine-gun nest, an 88-mm. gun crew, and a second machine-gun nest. Then he turned on a third nest, which had wounded him fatally, and wiped out its crew before he fell dead across the bodies of his victims. He left a widow, Mrs. Ethel M. Dutko, of Riverside, N. J., and a small daughter.

11. Lieutenant Robert T. Waugh, resident of Phoenixville. From May 11 to 14, 1944, near Tremensuoli, Italy, he single-handed reduced six bunkers and two pillboxes. The award was made posthumously to his widow, Mrs. Helen Waugh.

12. Technician Fifth Grade John J. Pinder, Burgettstown, R. D. 1, killed June 6, 1944, on the beach at Colleville Sur Mer, France, at the age of 32. His citation read in part: "On D-Day, Technician Fifth Grade Pinder landed on the coast 100 yards off shore under devastating enemy machine gun and artillery fire which caused severe casualties among the boatload. Carrying a vitally important radio, he struggled towards shore in waist-deep water. Only a few yards from his craft he was hit by enemy fire and was gravely wounded. Technician Fifth Grade Pinder never stopped. He made shore and delivered the radio. Refusing to take cover afforded, or to accept medical attention for his wounds, Technician Fifth Grade Pinder, though terribly weakened by loss of blood and in fierce pain, on three occasions went into the fire-swept surf to salvage communication equipment. When he recovered many vital parts and equipment, including another workable radio, on the third trip he was again hit, suffering machine-gun bullet wounds in the legs. Still this valiant soldier would not stop for rest or medical attention. Remaining exposed to heavy enemy fire, growing steadily weaker, he aided in establishing the vital radio communications on the beach. While so engaged, this dauntless soldier was hit for the third time and killed." As a member of the 1st Infantry Division, Pinder had taken part in the North African and Sicilian campaigns. In civilian life he had been a professional baseball player in the Penn State, Atlantic, and Florida State Leagues.

13. Technical Sergeant John D. Kelly, born Venango Township, Crawford County, October 7, 1921; residence Cambridge Springs, R. D. 1; killed November 23, 1944; received the award for gallantry in the assault on Cherbourg, June 25, 1944. When the 79th Infantry

Division was held up before Fort Du Roule on the approaches to Cherbourg, Kelly volunteered to wipe out a Nazi strong point which was impeding the advance. His commanding officer, Major General I. T. Wyche, said: "Carrying a pole charge 10 feet long and 15 pounds of TNT, Sergeant Kelly entered the open ground and walked deliberately into the hail of fire that was turned on him. Working coolly, he pushed his explosive charge against the strong point. The blast was ineffective and, still in the sights of every machine gun and rifle in the German position, he walked back to where his comrades were pinned down. Shouldering a second pack of TNT, he again entered the storm of concentrated fire and this time when he pushed the explosive against the enemy strong point, the blast sheared the ends of the blazing and protruding enemy guns. A third time he made the trip down and then back up the slope, this time to place a charge against the rear entrance to the strong point. With the entrance blasted away, he stood before it to hurl grenades into the position. When called upon, the remaining Germans in the strong point stumbled out to surrender." A former log-cutter, Kelly was employed at Guys Mills, Crawford County, at the time of his induction into the Army on May 14, 1942. The Medal of Honor was presented to his widow, Mrs. Mary E. Kelly, also of Cambridge Springs.

14. Private John R. Towle, Tyrone. Bazooka man in the 82nd Airborne Division, he was part of a section attempting to relieve the British troops before Arnhem on September 21, 1944. When his group was attacked by German infantry, supported by two tanks, he left his foxhole without orders and advanced across an open field under heavy fire. The pointblank fire of his bazooka only dented the two tanks, but the vehicles fled. Aiming his weapon at a house in which nine German soldiers had sought shelter, he killed all of them with a single shot. He then went after an enemy half-track under heavy fire and, while preparing to fire his bazooka, was killed by a mortar shell.

15. Captain Robert E. Roeder, born Summit Station, Schuylkill County, July 25, 1917. His citation read: "For conspicuous gallantry and intrepidity, at risk of life above and beyond the call of duty on September 27 and 28, 1944, on Mount Battaglia, Italy. Captain Roeder commanded his company in defense of the strategic Mount Battaglia. Shortly after the company had occupied the hill, the Germans launched the first of a series of determined counterattacks to regain this dominating height. Completely exposed to ceaseless enemy artillery and small arms fire, Captain Roeder constantly circulated among his men, encouraging them and directing their defense against the persistent enemy.

During the sixth counterattack, the enemy, by using flame throwers and taking advantage of the fog, succeeded in overrunning the position. Captain Roeder led his men in a fierce battle at close quarters to repulse the attack with heavy losses to the Germans. The following morning, while the company was engaged in repulsing an enemy counterattack in force, Captain Roeder was seriously wounded and rendered unconscious by shell fragments. He was carried to the company command post where he regained consciousness. Refusing medical treatment, he insisted on rejoining his men. Although in a weakened condition, Captain Roeder dragged himself to the door of the command post, and, picking up a rifle, braced himself in a sitting position. He began firing his weapon, shouting words of encouragement, and issued orders to his men. He personally killed two Germans before he himself was killed instantly by an exploding shell. Through Captain Roeder's able and intrepid leadership, his men held Mount Battaglia against the aggressive and fanatical enemy attempts to retake this important strategic height. His valorous performance is exemplary of the fighting spirit of the Army of the United States." Captain Roeder commanded Company G, 350th Infantry Regiment, 88th Division, at the time of his death. After enlisting in the Army January 5, 1936, he was stationed at Fort Meade until 1939. Sent to Hawaii, he applied for OCS and was commissioned a second lieutenant, June 12, 1942. He became a captain on April 27, 1944, in the North African theater of operations. The medal was presented to his mother.

16. STAFF SERGEANT SHERWOOD H. HALLMAN, 30, Spring City, Chester County. His company of the 29th Division was held up in its attack on Brest, September 13, 1944. Sergeant Hallman instructed his squad to cover the enemy position and leaped over a hedgerow into a sunken road which he knew contained a machine gun and at least thirty riflemen. Firing his carbine and throwing grenades, he killed four of the Germans and captured twelve more. When his company had occupied the position, another 75 Nazis surrendered. Sergeant Hallman's heroic action permitted his battalion to advance more than 2,000 yards and eventually to capture Fort Keranroux, bringing about the fall of Brest. He was killed in action the next day. After attending school in Phoenixville, where he played football, he had operated a door-to-door grocery service until he was inducted on January 8, 1943. He was married to the former Virginia Dieter, of Kimberton, and had a two-year old son.

17. FIRST LIEUTENANT JOHN J. TOMINAC, 22, of Franklin Borough, Cambria County. He was serving with the Third Infantry

Division of the Seventh Army on October 21, 1944, near Vesoul in Southern France, when the order came to advance. He led a squad down the road toward the Germans, going ahead of a supporting tank. Hit by a shell, the tank was abandoned by its crew. Lieutenant Tominac jumped on the vehicle, which was still rolling towards the enemy, and manned its machine gun. Despite three more direct hits, he continued to fire the gun, jumping off just before the tank reached the enemy position and exploded. Though wounded in the shoulder, he went on into Vesoul with his platoon and knocked out another enemy strong point. After graduating from Johnstown Central High School, Tominac had worked for Bethlehem Steel for a year before entering the Army in November, 1941. Sent to the Lincoln, Neb., air base as a mechanics instructor, he tired of being a private first class and applied for OCS training. After he received his commission in July, 1943, he returned to Lincoln to marry Bette M. Schneider, whom he had met while stationed there. He joined the Third Division on the Anzio beachhead on March 2, 1944, and did not miss a day of combat until he was wounded at Vesoul.

18. MAJOR WILLIAM A. SHOMO, born in Jeannette, 1918. Over Luzon, January 12, 1945, Major Shomo and his wingman attacked a Jap bomber, which was protected by twelve fighter planes. He shot down the bomber and six of the fighters, while his wingman got three more. After graduating from Jeannette High School in 1936, Shomo had attended the Cincinnati College of Embalming and returned to Jeannette as an apprentice undertaker. In August, 1941, he enlisted as a flying cadet and was sent to the South Pacific in October, 1943. His wife, the former Helen McCullough, is living at New Florence with their two small sons.

19. MARINE CORPORAL ANTHONY P. DAMATO, born in Shenandoah, March 28, 1922. His gallantry occurred on Eniwetok Atoll, in the Marshall Islands, on the night of February 19, 1944. His citation read: "Highly vulnerable to sudden attack by small fanatical groups of Japanese still at large despite the efficient and determined efforts of our forces to clear the area, Corporal Damato lay with two comrades in a large foxhole in his company's defense perimeter which had been dangerously thinned by the forced withdrawal of nearly half of the available men. When one of the enemy approached the foxhole undetected and threw in a hand grenade, Corporal Damato desperately groped for it in the darkness. Realizing the imminent peril to all three and fully aware of the consequences of his act, he unhesitatingly flung himself on the grenade and, although instantly killed as his body absorbed the

explosion, saved the lives of his two companions. Corporal Damato's splendid initiative, fearless conduct and valiant sacrifice reflect great credit upon himself and the United States Naval Service. He gallantly gave his life for his comrades." One of a family of eight, "Tony" had driven a coal truck before he enlisted in the Marines in January, 1942. An older brother has been missing in action over Germany since November, 1943. The medal was presented to his widowed mother in Tony's old class room in Lincoln Grammar School on April 9, 1945.

20. Sergeant John J. McVeigh, born September 23, 1921, in Philadelphia. On August 29, 1944, the Germans assaulted his platoon of the 23rd Infantry Regiment near Brest. The American line sagged under heavy fire, and the Germans almost overran one machine-gun position. Heedless of a tremendous amount of small arms and flak fire directed toward him, Sergeant McVeigh stood up in full view of the advancing Nazis, shouting instructions to his squad and emptying his rifle at the attackers. He then charged the enemy with his trench knife, and killed one before he in turn was killed by the others. His courageous action enabled his platoon to reorganize and hold its line. A graduate of Philadelphia's Northeast Catholic High School, McVeigh had been employed as an apprentice by the Philadelphia Rust Proof Company. He went into service in October, 1942, ten months after he had married Virginia Payne. The medal was presented on April 20, 1945, to his two-year-old daughter, Joan, whom he had seen but twice, in front of the Liberty Bell in Independence Hall.

21. Private Donald R. Lobaugh, 21, Freeport. On July 22, 1944, his unit of the 32nd Infantry Division was cut off by the Japanese near Afua, New Guinea. The only withdrawal route was covered by an enemy machine gun and riflemen. Deciding to make the attack alone, Private Lobaugh crawled over the open space under fire. Part way across he was wounded while throwing a hand grenade. "Heedless of his wounds," the citation said, "he boldly rushed the emplacement, firing as he advanced. The enemy concentrated their fire on him and he was struck repeatedly, but he continued his attack and killed two more before he was himself slain." As a result of this action, his platoon was able to escape without the loss of another man. Private Lobaugh, a former employee of the Jos. S. Finch Company, Schenley, had entered service in May, 1942. He had two brothers and six sisters. The medal was presented to his mother.

APPENDIX B. PENNSYLVANIA GENERALS, ADMIRALS, AND COMMODORES

This list contains the names of high-ranking Army and Navy officers who were born in, grew up in, or have their residence in Pennsylvania. Based on official Army and Navy records as well as other sources of information, the data given is as complete and accurate as it has been possible to make it, but there are doubtless some inaccuracies and omissions. While the assignment given for each officer is the latest known on April 30, 1945, it is not necessarily the one actually held on that date.

Allen, Ezra Griffen, R. Adm., b. Scranton, March 11, 1885; director, Office of Budget and Reports, Navy Dept.

Arnold, Henry H., Gen. of Army, b. Gladwyne, Montgomery Co., June 25, 1886; commander, U. S. Army Air Forces.

Aurand, Henry S., Maj. Gen., b. Tamaqua, Apr. 21, 1894; commander, 6th Service Command, Chicago; in charge of supply operations, Normandy, November, 1944; commander, Services of Supply, U. S. Forces in China theater.

Baer, Joseph Augustus, Brig. Gen., b. Kutztown, Apr. 29, 1878; chief of staff, headquarters, 2nd Service Command, Governors Island, N. Y.

Baughman, Cortlandt C., Cmdre., b. West Newton, Westmoreland Co., Dec. 12, 1884; commandant, U. S. Naval Operating Base, Londonderry, Ireland.

Bernhard, Alva Douglas, R. Adm., b. Enterprise, March 9, 1886; aircraft commander, Atlantic Fleet; commander, Atlantic task force; in Pacific, 1944.

Bissell, Clayton L., Maj. Gen., b. Kane, July 29, 1896; commander, 10th Air Force, India; chief of staff, intelligence, headquarters, Army Air Forces; assistant chief of staff, intelligence, headquarters, U. S. Army.

Boak, James Earl, Cmdre., b. Hughesville, Apr. 6, 1891; commander, advanced Naval base.

Bolling, Alexander R., Maj. Gen., b. Philadelphia, Aug. 28, 1895; office of the Chief of Staff; commander, 84th Infantry Division.

Boone, Milton Orme, Brig. Gen., b. N. J., June 15, 1891, res. Luzerne Co.; commander, California Quartermaster Depot, Oakland, California.

Bragdon, John S., Brig. Gen., b. Pittsburgh, May 21, 1893; South Atlantic Division Engineer, Atlanta; chief, Military Construction Division, O. C. E., Washington, D. C.

Brereton, Lewis H., Lt. Gen., b. Pittsburgh, June 21, 1890; commander, 9th Air Force; commander, Allied Airborne Army.

Bricker, Edwin D., Brig. Gen., b. Chambersburg, Nov. 24, 1875; Board of Economic Warfare, Washington, D. C.; retired June 21, 1943.

Brinser, Harry Lerch, R. Adm., b. Middletown, Nov. 11, 1876; Inspector of Naval Materials, New York City.

Brock, Ronald C., Brig. Gen., b. Coudersport, June 25, 1895; artillery commander, 106th Infantry Division; artillery commander, 65th Infantry Division, Europe.

Brown, John Herbert, Jr., R. Adm., b. Canton, Bradford Co., Oct. 12, 1891; commander, submarine base, Pearl Harbor, 1943; commander, cruiser division, Pacific.

Brown, Wilson, V. Adm., b. Philadelphia, Apr. 27, 1882; naval aide to President Roosevelt, 1942-45.

Campbell, Walter, Maj. Gen., b. Chester, Sept. 22, 1877; headquarters, Army Service Forces, assigned special duty with War Production Board.

Cates, Clifton Bledsoe, Maj. Gen. (U. S. M. C.), b. Aug. 31, 1893, res. Philadelphia; commander, Marine Corps School, Quantico, Va.; commander, 4th Marine Division.

Christmas, John K., Brig. Gen., b. Pittsburgh, March 4, 1895; assistant chief, Tank Automotive Center, Detroit; special assistant to chief, Industrial Service Office, Chief of Ordnance, Washington, D. C.

Craig, Howard A., Brig. Gen., b. Philadelphia, Dec. 22, 1897; assistant chief of air staff, Operations, Commitments and Requirements, headquarters, Army Air Forces.

Crawford, David McL., Brig. Gen., b. N. J., Oct. 10, 1889, res. Mifflintown, Juniata Co.; director, Communications Coordination Division, O. C. S. O., Washington, D. C.

Crawford, Roscoe C., Brig. Gen., b. Bridgewater, Beaver Co., Nov. 1, 1887; division engineer, Missouri River Division, Omaha.

Crist, William E., Brig. Gen., b. Harrisburg, Aug. 10, 1898; assistant division commander, 91st Infantry Division; civil affairs officer, 10th Army.

Cubbison, Donald C., Maj. Gen., b. Harrisville, Butler Co., May 8, 1882; commander, Field Artillery R. T. C., Fort Bragg, N. C.

Cunningham, Julian W., Brig. Gen., b. Blairsville, May 1, 1893; assigned to Miscellaneous Group, U. S. A. F. in Far East.

Curtis, Charles C., Brig. Gen., b. Wiconisco, Dauphin Co., Oct. 29, 1893, res. Allentown; commander, 33rd A. A. Coast Artillery Brigade; in Europe.

Delany, Walter Stanley, R. Adm., b. Reading, Jan. 21, 1891; assistant chief of staff, Pacific Fleet; assistant chief of staff, Chief of Naval Operations.

Devers, Jacob Loucks, Gen., b. York, Sept. 8, 1887; commander, U. S. Armored Forces; commander, U. S. Forces in European theater; commander, U. S. Forces in Mediterranean theater; commander, 6th Army Group.

Ditto, Rollo C., Brig. Gen., b. Mercersburg, Sept. 27, 1886; Huntsville Arsenal, Ala.; assistant chief, Chemical Warfare Service for Material, Washington, D. C.

Downs, Sylvester D., Jr., Brig. Gen., b. Greenville, Feb. 28, 1889; post executive, Fort Greeley, Alaska; overseas assignment.

Drain, Jesse C., Brig Gen., b. Braddock, Sept. 25, 1883; 41st Infantry Division; X Section Field Agencies, War Department Manpower Board.

Edwards, Idwal H., Maj. Gen., b. N. Y., Apr. 5, 1895, early years Taylor and Scranton, res. Bloomsburg; chief of staff, U. S. Forces in European theater; deputy commander, U. S. Air Forces in Mediterranean theater; assistant chief of staff in charge of training.

Edwards, Richard S., Adm., b. Philadelphia, Feb. 18, 1885; chief of staff, Chief of Naval Operations; Deputy Chief of Naval Operations and deputy commander, U. S. Fleet.

Embick, Stanley D., Lt. Gen., b. Greencastle, Jan. 22, 1877; chairman, Inter-American Defense Board.

Ent, Uzal G., Maj. Gen., b. Northumberland, Mar. 3, 1900; commanded Ploesti raid, 1943; commander, Second Air Force, Colorado Springs; seriously injured in air crash, 1944.

Fischler, Peter Kalsch, R. Adm., b. Wellsboro, Sept. 10, 1895; commander, battleship division.

Freeman, Charles S., V. Adm., b. Erie, Nov. 19, 1878; commandant, 13th Naval District and Northwestern Frontier, Seattle; retired, Dec. 1, 1942.

Furlong, William R., R. Adm., b. Allenport, May 26, 1881, res. Roscoe, Washington County; commandant, Pearl Harbor Navy Yard.

Gardner, Matthias Bennett, R. Adm., b. Washington, D. C., Nov. 28, 1897, res. State College; commander, aircraft carrier division; deputy chief of staff, Commander-in-Chief, U. S. Fleet.

Gavin, James M., Maj. Gen., b. Mar. 22, 1907, early years Mount Carmel; commander, 82nd Airborne Division.

Giffen, Robert C., V. Adm., b. West Chester, June 29, 1886; commanded task force, invasion of North Africa; commanded fire support groups, Gilbert-Marshall invasions; commandant, 10th Naval District and Caribbean Sea Frontier.

Gilbert, Harold, Brig. Gen., b. Halifax, Mar. 10, 1896, res. Williamsport; director, Office of Dependency Benefits, Newark.

Gilkeson, Adlai H., Brig. Gen., b. Lansdale, Jan. 25, 1893; air base command, Albrook Field, Canal Zone; commander, 312th Fighter Wing, China.

Ginder, Samuel Paul, R. Adm., b. Altoona, Feb. 15, 1895; commander, Naval Air Station, Trinidad; commander, *U. S. S. Enterprise;* commander, Carrier Transport Squadron, Pacific Fleet.

Griswold, Francis Hopkinson, Brig. Gen., b. Erie, Nov. 5, 1904; commander, 8th Fighter Command.

Groninger, Homer M., Maj. Gen., b. Port Royal, Juniata Co., July 24, 1884; commander, Port of Embarkation, Brooklyn.

Grow, Malcolm C., Brig. Gen., b. Philadelphia, Nov. 19, 1887; Air Force staff surgeon, European theater; redesignated Air Service Command, U. S. Strategic Air Force in European theater.

Grunert, George, Lt. Gen., b. White Haven, Luzerne Co., July 21, 1880; commander, Eastern Defense Command and 1st Army, Governors Island, N. Y.

Handwerk, Morris C., Brig. Gen., b. Somerset Co., Feb. 17, 1891; Anti-Aircraft Training Center, Camp Haan, Calif.

Hannum, Warren T., Brig. Gen., b. Pottsville, Mar. 8, 1880; South Pacific Division Engineer, Salt Lake City; relieved of active duty, Jan., 1944.

Harmon, Hubert R., Maj. Gen., b. Chester, Apr. 3, 1892; commander, 6th Air Force; commander, 13th Air Force; commander, Air Force Personnel Distribution Command; assistant chief of air staff in charge of personnel.

Hauseman, David N., Brig. Gen., b. Pottstown, Mar. 4, 1895; chief, Philadelphia Ordnance District; director, Readjustment Division, Army Service Forces.

Hepburn, Arthur Japy, Adm., b. Carlisle, Oct. 15, 1877; chairman, Naval General Board.

Honnen, George, Brig. Gen., b. Philadelphia, Nov. 16, 1897; chief of staff, 3rd Army, San Antonio; Commandant of Cadets, U. S. Military Academy, West Point.

Houghton, Junius H., Brig. Gen., b. Titusville, Aug. 21, 1892; chief, Supply Division, Air Service Command, England.

Jacobs, Randall, V. Adm., b. Danville, Dec. 12, 1885; chief, Naval Personnel.

Johnson, Alfred W., V. Adm., b. Philadelphia, Nov. 18, 1876; member, Joint U. S. Mexican Defense Commission; senior Navy Member, Inter-American Defense Board.

Kalbfus, Edward Clifford, Adm., b. Mauch Chunk, Nov. 24, 1877; member, Naval General Board, and director of Naval History.

Kauch, Robert, Brig. Gen., b. Philadelphia, July 14, 1894; 9th Air Force; commander, Mediterranean Air Transport Command.

Kinkaid, Thomas C., Adm., b. N. H., Apr. 3, 1888, res. Philadelphia; commanded U. S. forces in invasion of Attu and Kiska; commander, South Pacific Force, 7th Fleet.

Kirk, Alan G., V. Adm., b. Philadelphia, Oct. 30, 1888; commander, Amphibious Force, Atlantic Fleet, invasions of Sicily, France; commander, U. S. Naval Forces in France.

Kunzig, Louis Albert, Brig. Gen., b. Altoona, Jan. 6, 1882; commander, Camp Blanding, Fla.; retired in grade of colonel, Jan., 1943.

Lemnitzer, Lyman L., Maj. Gen., b. Honesdale, Aug. 29, 1899; deputy chief of staff, Allied Forces in Italy.

Lull, George F., Maj. Gen., b. Scranton, Mar. 10, 1887; Deputy Surgeon General.

Lundberg, George G., Brig. Gen., b. Titusville, Oct. 19, 1892; commander, Middletown Air Depot; commander, 6th Air Service Command, Canal Zone.

March, Francis A., Brig. Gen., b. Easton, Nov. 2, 1895.

Marshall, George Catlett, Gen. of Army, b. Uniontown, Dec. 31, 1880; Chief of Staff, U. S. Army.

Marston, John, Maj. Gen. (U. S. M. C.), b. Somerset, Aug. 3, 1884; commander, Marine base, Camp Le Jeune, N. C.

Martin, Edward, Maj. Gen., b. Ten Mile, Greene Co., Sept. 18, 1879; commander, 28th Division; retired, April 1, 1942.

Mason, Charles Perry, R. Adm., b. Harrisburg, Jan. 12, 1891; commander, *U. S. S. Hornet;* commandant, Naval Training Station, Corpus Christi, Texas; commander, Naval Air Intermediate Training, Pensacola, Fla.

McCoach, David, Jr., Maj. Gen., b. Philadelphia, Jan. 27, 1887; commander, 9th Service Command, Fort Douglas, Utah; European assignment; commander, 6th Service Command.

McDonald, George C., Brig. Gen., b. Philadelphia, Apr. 27, 1892.

McGaw, Edward J., Brig. Gen., b. Philadelphia, Feb. 13, 1901; assistant to assistant chief of staff, G-3, headquarters, Army Ground Forces; artillery commander, 63rd Infantry Division in France.

McIntyre, Andrew F., Brig. Gen., Philadelphia; chief, Rail Division, Office of Chief of Transportation.

McKee, John L., Brig. Gen., b. Pittsburgh, Dec. 8, 1894; assistant commander, 8th Motorized Division; assistant commander, 87th Infantry Division in Europe.

McKinley, Edward B., Brig. Gen., b. Washington, D. C., Dec. 20, 1895, res. Philadelphia; Deputy Vice-President, Allied Commission in Italy.

McNarney, Joseph T., Gen., b. Emporium, Aug. 28, 1893; Deputy Chief of Staff, U. S. Army; deputy Allied Commander, Mediterranean theater.

Meade, Frank C., Brig. Gen., b. Philadelphia, Dec. 16, 1896; office of Chief Signal Officer, Washington, D. C.

Metzger, Earl H., Brig. Gen., b. Steelton, Aug. 14, 1889; commander, Coast Artillery Anti-Aircraft Training Center, Camp Stewart, Ga.; overseas.

Miller, Lehman W., Brig. Gen., b. Millerstown, Perry Co., June 29, 1891; Engineer R. T. C., Fort Belvoir, Va.; retired, Aug., 1944.

Miller, Luther, Brig. Gen., b. Leechburg, June 14, 1899; Chief of Chaplains.

Morrissey, William J., Brig. Gen., b. Philadelphia, Feb. 3, 1888; deputy air chief of staff, G-4, Washington, D. C.

Newgarden, Paul W., Maj. Gen., b. Philadelphia, Feb. 24, 1892; commander, 10th Armored Division; killed in air crash, July 14, 1944.

Newton, John H., V. Adm., b. Pittston, Dec. 13, 1881, res, Carbondale; sub-chief of Naval Operations; commander, Allied Forces in South Pacific; inspector general, Pacific Fleet.

Nicholas, Richard, Brig. Gen., b. York, Nov. 16, 1890; engineer, 9th Army.

Nugent, Richard E., Brig. Gen., b. Altoona, Dec. 12, 1902; commander, 29th Tactical Air Command, 9th Air Force, attached to 9th Army.

Olmstead, Dawson, Maj. Gen., b. Corry, May 21, 1884; commander, U. S. Army Signal Corps; War Department representative on Telecommunication Board; retired, Jan., 1944.

Oman, Charles Malden, R. Adm., b. Light Street, Columbia Co., Oct. 23, 1878; commandant, U. S. Naval Medical Center, Washington, D. C.; retired Nov. 1, 1942.

Paine, George H., Brig. Gen., b. Scranton, July 14, 1884; commander, 46th Field Artillery Brigade.

Partridge, Frank H., Brig. Gen., b. Scranton, Dec. 1, 1893; assistant commander, 97th Infantry Division.

Patch, Alexander M., Lt. Gen., b. Ariz., Nov. 23, 1889, early years in Lebanon; commanded at Guadalcanal and New Caledonia; commander, 7th Army.

Patch, Joseph, Maj. Gen., b. Ariz., Dec. 8, 1885, early years in Lebanon; commander, Trinidad base; commander, A.S.F. Training Center, Fort Lewis, Washington, D. C.

Peabody, Hume, Brig. Gen., b. Shinglehouse, Potter Co., Nov. 24, 1893; commander, Army Air Force Tactical Center; commander, A. A. F. Eastern Flying Training Command, Maxwell Field, Ala.

Philips, Joseph L., Brig. Gen., b. Valley Forge, June 15, 1890; office, chief of transportation; 51st Major Port, Transportation Corps, Brooklyn, N. Y.

Porter, John A., Brig. Gen., b. Allegheny Co., Jan. 14, 1886; commander, Quartermaster Section, San Antonio General Depot, Texas.

Pownall, Charles Alan, R. Adm., b. Atglen, Chester Co., 1887, res. Tyrone; commandant, Naval Air Training Station, Pensacola; commander, Pacific Fleet Air Force.

Ravdin, Isador, Brig. Gen., b. State of Indiana, res. Philadelphia; Army Medical Corps, China-Burma-India theater.

Reeder, William O., Brig. Gen., b. Allegheny Co., May 15, 1897, res. Butler; commander, Signal Corps School, Fort Monmouth, N. J.

Reimel, Stewart E., Brig. Gen., b. Stroudsburg, Apr. 24, 1892; section chief, Maintenance Division, Tank Automotive Center, Detroit; chief, New York Ordnance District.

Richards, George J., Brig. Gen., b. Easton, Apr. 12, 1891; Budget Officer, War Department.

Rockey, Keller Emrick, Maj. Gen. (U. S. M. C.), b. State of Indiana, Sept. 20, 1888, early years in Waynesboro; commander, 5th Marine Division.

Rodgers, Bertram Joseph, R. Adm., b. Knoxville, Allegheny Co., Mar. 18, 1894; commander, *Salt Lake City;* commander, assault force, invasion of southern France; on staff, commander, Amphibious Forces, Pacific.

Roop, James C., Brig. Gen., b. Upland, Delaware Co., Oct. 3, 1886.

Rush, Huge P., Brig. Gen., b. Pequea Twp., Lancaster Co., Sept. 13, 1900; commander, Liberator heavy bombardment wing, 15th Air Force.

Russell, Charles F., Cmdre., b. Wellsboro, Aug. 19, 1883, commandant, Naval Training Center, Bainbridge, Md.

Sallada, Harold Bushnell, R. Adm., b. Williamsport, Jan. 23, 1895; chief, Plans Division, Bureau of Aeronautics; commander, carrier unit, 3rd Fleet; chief, Bureau of Aeronautics.

Scanlon, Martin Francis, Brig. Gen., b. Scranton, Aug. 11, 1889; 38th Flying Training Wing, Rosell, N. M.

Scowden, Frank F., Maj. Gen., b. Meadville, Aug. 18, 1886; director, Storage and Distribution Division, Office of Quartermaster General; assigned to G-5 Division, headquarters, A. E. F. in Europe.

Smith, John Piper, Maj. Gen., b. Hopewell, Bedford Co., Jan. 28, 1883; chief, Administrative Services, headquarters, Services of Supply; unannounced assignment.

Smith, Joseph, Brig. Gen., b. Scranton, Oct. 31, 1901; chief of staff, 3rd Army Air Force, Tampa, Fla.; chief of staff, 20th Bomber Command, India.

Smith, Oscar, Cmdre., b. Wilkes-Barre, Jan. 8, 1887; office, Chief of Naval Operations; deputy chief of staff, Commander in Chief, Atlantic Fleet.

Spaatz, Carl, Gen., b. Boyertown, June 26, 1891; commander, U. S. Army Air Forces in Mediterranean theater; commander, American Strategic Air Forces operating against Germany.

Smythe, George W., Brig. Gen., b. Norristown, Aug. 4, 1899.

Spalding, Sidney P., Brig. Gen., b. Mass., Aug. 5, 1889, res. Pittsburgh; director, production branch, office of Undersecretary of War.

Stackpole, Edward J., Brig. Gen., b. Harrisburg, June 21, 1894; commander, 56th Infantry Brigade; member, War Department Manpower Board, Washington, D. C.

Stark, Harold R., Adm., b. Wilkes-Barre, Nov. 12, 1880; Chief of Naval Operations; commander, U. S. Naval Forces in European waters, 12th Fleet.

Stayer, Morrison C., Maj. Gen., b. Roaring Springs, Blair Co., July 12, 1882; Chief Health Officer, Canal Zone; Chief Surgeon, Italy.

Stockton, Edward A., Jr., Brig. Gen., b. Philadelphia, Apr. 22, 1886; commander, San Francisco Harbor defenses, Fort Scott, Calif.; commander, A. A. A. Training Center, Camp Gordon, Ga.

Stroh, Donald A., Maj. Gen., b. Harrisburg, Nov. 3, 1892; 9th Infantry Division; commander, 8th Infantry; unknown assignment in Europe.

Stuart, LaRhett L., Brig. Gen., b. South Bethlehem, Jan. 17, 1892; commander, 66th Anti-Aircraft Artillery Brigade.

Uhl, Frederick E., Maj. Gen., b. S. D., Mar. 30, 1886, early years in Allentown; commander, 4th Service Command, Atlanta.

Upthegrove, Fay R., Brig. Gen., b. Port Allegany, Jan. 28, 1905; commander, Liberator bombardment wing, Italy.

Vogel, Clayton Barney, Maj. Gen. (U. S. M. C.), b. Philadelphia, Sept. 18, 1882; commander, Fleet Marine Force, San Diego; commander, Marine base, Parris Island, N. C.

Wagner, Frank Dechant, R. Adm., b. Pottstown, Aug. 22, 1893; commander, Asiatic Fleet Air Forces, 1941-42; aircraft commander, 7th Fleet, 1944.

Wessels, Theodore F., Brig., Gen., b. Philadelphia, May 31, 1892; combat commander B, 20th Armored Division; commander, "Merrill's Marauders," Burma.

Williams, John Francis, Maj. Gen., b. Wilkes-Barre, Jan. 7, 1887; chief, National Guard Bureau.

Willis, John Mitchell, Sr., Brig. Gen., b. Va., Nov. 25, 1886, res. Erie; chief surgeon, Pacific Ocean areas.

Willoughby, Charles A., Brig. Gen., b. Germany, Mar. 8, 1892; grad. Pennsylvania College, Gettysburg; chief of intelligence under MacArthur, 1941; assistant chief of staff, G-2.

Wilson, Robert W., Brig. Gen., b. Harrisburg, Aug. 26, 1893; commander, supply division, Field Artillery Branch, France; assistant chief of staff, G-4, First Army.

Wolfe, Henry C., Brig. Gen., b. Lewisburg, May 21, 1896; engineer amphibian troops, engineer section, 6th Army Group.

Wood, Eric Fisher, Brig. Gen., b. N. Y., Jan. 4, 1889, res. Bedford: liaison officer, Southern Defense Command and Civilian Defense; director of Prisoners of War and Displaced Persons Bureau.

Wood, John S., Maj. Gen., b. Ark., Jan. 11, 1888, res. Bryn Mawr; commander, 4th Armored Division; headquarters, Army Ground Forces, Washington, D. C.

Wood, Walter A., Brig. Gen., b. Honesdale, June 9, 1894; deputy director, Plans and Operations, headquarters, Army Service Forces.

Workman, Robert DuBois, R. Adm., b. Ohio, June 7, 1885, early years in Lancaster Co., res. Leaman Place, Lancaster Co.; Chief of Chaplains.

Young, Charles D., Brig. Gen., b. Washington, D. C., 1878, res. Haverford; chief, Procurement and Distribution, Service of Supply; deputy director, Office of Defense Transportation.

Young, Gordon R., Brig. Gen., b. Philadelphia, Dec. 14, 1891; engineer officer, Panama Canal Department; commander, Fort Belvoir, Va.

Zundel, Edwin A., Brig. Gen., b. Greensburg, Mar. 29, 1893.

APPENDIX C. PRODUCTION AWARDS

The following list of Pennsylvania manufacturers awarded the Army-Navy "E" or the Maritime Commission "M" is as complete and accurate as it was possible to make it from the available sources. The Historical and Museum Commission would appreciate being informed of any errors or omissions.

Ace Manufacturing Company, Philadelphia

Acme Die and Machine Company, Latrobe

Aetna-Standard Engineering Company, Ellwood City

Aetna Steel Products Corporation, Pottsville

Aldan Rubber Company, Philadelphia

Aldon Products Company, Duncannon

Aldrich Pump Company, Allentown

Allegheny-Ludlum Steel Corporation, Brackenridge

Allied Chemical Company
  Barrett Division, Bridesburg Station, Philadelphia

Altoona Factories, Altoona

Aluminum Company of America, New Kensington

American Bantam Car Company, Butler

American Bridge Company, Ambridge

American Car & Foundry Company, Berwick

American Chain and Cable Company
  American Cable Division, Wilkes-Barre
  Hazard Wire Rope Division, Wilkes-Barre
  Wright-Manley Manufacturing Division, York

American Cyanamid & Chemical Corporation, Bridgeville

American Engineering Company, Philadelphia

American Locomotive Company
  Railway Spring Division, Latrobe

American Meter Company, Inc., Philadelphia

American Pulley Company, Philadelphia

American Rolling Mill Company, Butler

American Sterilizer Company, Erie

American Viscose Corporation, Marcus Hook

American Welding Company, Carbondale

Animal Trap Company, Lititz

Arcos Corporation, Philadelphia

Arms-Franklin Corporation, Franklin

Armstrong Cork Company, Lancaster

Atlantic Manufacturing Company, Philadelphia

Atlas Metal Stamping Company, Philadelphia

Atlas Tool & Designing Company, Philadelphia

Atlas Powder Company, Reynolds

Autocar Company, Ardmore

Aviation Corporation
  Lycoming Division, Williamsport

Babcock and Wilcox Tube Company, Beaver Falls

Baldwin Locomotive Works, Eddystone

Batteryless Telephone Equipment Company, Pittsburgh

M. L. Bayard and Company, Philadelphia

Beach Manufacturing Company, Montrose

Belle Knitting Corporation, Sayre

Bell Telephone Company of Pennsylvania, Philadelphia

Bendix Aviation Corporation, Philadelphia
  Philadelphia Division

Bethlehem Foundry and Machine Company, Bethlehem

Bethlehem Steel Company, Inc., Bethlehem

Blaw-Knox Company
  Lewis Foundry and Machine Division, Groveton
  Union Steel Castings Division, Pittsburgh

Blaw-Knox Construction Company, Ambridge

Bliley Electric Company, Erie

Bloomsburg Mills, Inc., Lock Haven

Bonney Forge and Tool Works, Allentown

Bonsur & Holmes Company, Philadelphia

Boyertown Auto Body Works, Boyertown

Bradford Motor Works, Bradford

J. G. Brill Company, Philadelphia

Brit Equipment Company, Ambridge

Brook Manufacturing Company, Scranton

Brown Instrument Company, Philadelphia

Buchman Manufacturing Company, Philadelphia

Edward G. Budd Manufacturing Company, Philadelphia

Bunting Glider Company, Philadelphia

Burke Electric Company, Erie

Burkey Underwear Company, Inc., Hamburg

A. M. Byers Company
  South Side Plant, Pittsburgh
  Economy Plant, Economy

Carnegie-Illinois Steel Corporation, Pittsburgh
  Johnstown-Lorain Works

Carnell and Bradburn, Philadelphia

W. R. Case and Sons Cutlery Company, Bradford

Chambersburg Engineering Company, Chambersburg

Champion Pants Company, Perkasie

Chicago Bridge & Iron Company, Greenville

Chipman Knitting Mills
  Ordnance Division, West Easton

Cochrane Corporation, Philadelphia

Columbia Steel and Shafting Company, East Carnegie

Commercial Crystal Company, Lancaster

Condenser Service and Engineering Company, Scranton

Congoleum-Nairn, Inc., Marcus Hook

Container Corporation of America, Manayunk, Philadelphia

Continental Roll & Steel Foundry
  Duquesne Division, Coraopolis

Continental Rubber Works, Erie

Copperweld Steel Company, Glassport

Coplay Cement Manufacturing Company, Coplay

Corning Glass Works, Charleroi

Crucible Steel Company of America, Midland

Cruse-Kamper Company, Ambler

Dellenbarger Machine Company, Philadelphia

DeLong Hook & Eye Company, Philadelphia

Depot of Supplies, USMC, Philadelphia

Henry Disston and Sons, Inc., Philadelphia

Dodge Steel Company, Philadelphia

Doehler Die Casting Company, Pottstown

Dravo Corporation, Neville Island, Pittsburgh

DuPont de Nemours, Moosic

Walter H. Eagan Company, Philadelphia

Edgewater Steel Company, Oakmont

Electric Storage Battery Company, Philadelphia

Electric Tachometer Corporation, Philadelphia

Elliot Company, Jeannette

Erie City Iron Works, Erie

Erie Forge Company, Erie

Erie Forge & Steel Company, Erie

Erie Foundry Company, Erie

Erie Meter Systems, Inc., Erie

Everlastic Knitting Mills, Inc., Philadelphia

A. B. Farquhar Company, York

Federal Laboratories, Inc.
Plant No. 3, Tunnelton

Fidelity Machine Company, Philadelphia

Firth-Sterling Steel Company, McKeesport

Flannery Bolt Company, Bridgeville

Fleetwood Craftsmen, Fleetwood

Ford Motor Company
Chester Tank Department, Chester

Fort Pitt Bedding Company, Pittsburgh

Fort Pitt Steel Castings Company, McKeesport

E. T. Fraim Lock Company, Lancaster

Franconi Auto Parts and Defense Plant, Kingston

Franklin Lamp Manufacturing Company, Philadelphia

H. J. Freezer Company, York

William F. Fretz and Son, Doylestown

General Electric Company
Erie Works
Philadelphia Plant
York Plant

General Machine & Manufacturing Company, Berwick

General Steel Castings Company, Eddystone

Gibbs Underwear Company, Philadelphia

Girard Manufacturing Company, Girard

B. F. Goodrich Company, Oaks

L. F. Grammes and Sons, Inc., Allentown

E. O. Habhegger, Philadelphia

Haines Gauge Company, Philadelphia

Hale Fire Pump Company, Conshohocken

Hamilton Watch Company, Lancaster

Hammermill Paper Company, Erie

Harrisburg Steel Corporation, Harrisburg

Hays Manufacturing Company, Erie

Heintz Manufacturing Company, Philadelphia

Hendrick Manufacturing Company, Philadelphia

Heppenstall Company, Pittsburgh

Hershey Chocolate Corporation, Hershey

Herman Pneumatic Machine Company, Zelienople

Hess and Barker, Philadelphia

Heyden Chemical Corporation
Cherokee Ordance Works Plant, Danville

Heyl and Patterson, Pittsburgh

P. R. Hoffman Company, Carlisle

Homestead Valve Company, Coraopolis

Hubbard and Company, Pittsburgh

Ingalls Iron Works Company, Verona

Ingersoll-Rand Company, Athens

Ingram-Richardson Manufacturing Company, Beaver Falls

International Chain and Manufacturing Company, York

International Resistance Company, Philadelphia

ITE Circuit Company, Philadelphia

Frank Ix & Sons, Inc., New Holland

Jessop Steel Company, Washington

Jones & Laughlin Steel Corporation
  Aliquippa Works, Aliquippa
  McKeesport Works, Port Vue
  South Side Works, Pittsburgh

Kane Manufacturing Company, Kane

Keasbey and Mattison Company, Ambler

Kent Manufacturing Company, Clifton Heights

Kerotest Manufacturing Company, Pittsburgh

Kingsbury Machine Works, Philadelphia

Kitson Company, Philadelphia

Lamp Manufacturing Company, Inc., Philadelphia

Landis Tool Company, Waynesboro

Lansdowne Steel and Iron Company, Morton

Lebanon Steel Foundry, Lebanon

Leeds and Northrup Company, Philadelphia

Lehigh Foundries
  Lancaster Plant
  Easton Plant

Lehigh Structural Steel Company, Allentown

Karl Lieberknecht, Inc., Laureldale

Liberty Mirror Company, Brackenridge

Liggett Spring & Axle Company, Monongahela

Lime Material Company. East Stroudsburg

Lukens Steel Company, Coatesville

Machined Metals Company, West Conshohocken

MacKintosh-Hemphill Company, Pittsburgh

Mack Manufacturing Company, Allentown

Magee Carpet Company, Bloomsburg

Mantua Metal Products Company, Woodbury Heights, Philadelphia

Martin-Parry, York

C. H. Masland & Sons, Carlisle

Mathews Conveyor Company, Ellwood City

McKay Company, Pittsburgh

Merck & Company, Philadelphia

Mesta Machine Company
  Pittsburgh Plant
  West Homestead Plant

Metlab Company, Philadelphia

Midvale Company, Nicetown

I. Miller and Sons, Inc., Philadelphia

Miller Printing Machinery Company, Pittsburgh

Mine Safety Appliances Company, Pittsburgh

Morgan Brothers Company, Ambridge

W. F. Mosser and Son, Allentown

W. A. Moyer and Sons, Parkers Landing

Multiplex Manufacturing Company, Berwick

National Drug Company
  Biological Laboratories, Stroudsburg

National Foam System, Inc., West Chester

National Forge and Ordnance Company, Irvine

National Powder Company, Eldred

National Radiator Company
  Lebanon Plant
  Johnstown Plant
  New Castle Plant

National Supply Company
  Ambridge Plant
  Carnegie Plant
  Etna Plant

National Tube Works
  Elwood City Works
  Christy Park Works; National Works, McKeesport

National Union Radio Corporation, Lansdale

Naval Ammunition Depot, Fort Mifflin

John J. Nesbitt, Incorporated, Philadelphia

New England Auto Products Company, Pottstown

Nice Ballbearing Company, Philadelphia

Nolde & Horst Company, Reading

Ocean City Manufacturing Company, Philadelphia

O'Connor Machine Company, Sheffield

Oil Well Supply Company
  Imperial Works, Oil City

Okonite Company
  Hazard Insulated Wire Works
    Division, Wilkes-Barre

Ordnance Gauge Company, Philadelphia

Oritsky Company, Reading

Parish Pressed Steel Company, Reading

Peco Manufacturing Company, Philadelphia

Pennsylvania Electric Steel Casting Company, Hamburg

Philadelphia Gear Works, Philadelphia

Philadelphia Insulated Wire Company, Philadelphia

Philadelphia Textile Finishers, Inc., Philadelphia

Philco Corporation, Philadelphia

Phoenix Glass Company, Monaca

Pittsburgh Coke and Iron Company, Neville Island, Pittsburgh

Pittsburgh Crucible Steel, Pittsburgh

Pittsburgh Forging Company, Pittsburgh

Pittsburgh Steel Company
  Allenport Plant
  Monessen Plant

H. K. Porter Company, Pittsburgh

Pottsville Casting & Machine Shops, Pottsville

Powers and Company, Philadelphia

Precision Manufacturing Company, Philadelphia

Pressed Steel Car Company, McKees Rocks

Pullman Standard Company, Butler

Radio Corporation of America, Lancaster

Raybestos-Manhattan, Inc.
  United States Asbestos Division,
    Manheim

Read and Lovatt Manufacturing Company, Weatherly

Resinous Products & Chemical Company, Philadelphia

Robertshaw Thermostat Company, Youngwood

Robinson Industries, Inc., Franklin

Rock Bit Sales & Service Company, Philadelphia

Rohm and Haas, Philadelphia

Rogers Brothers Corporation, Albion

Roller-Smith, Allentown

Sarco Manufacturing Corporation, Bethlehem

Sauer, Inc., Pittsburgh

Schneider Wilson Company, Braddock

C. H. Schnorr & Company, Springdale

Wm. Sellers and Company, Philadelphia

Sharples Company, Philadelphia

Ralph Shipman Company, Sunbury

Skinner Engine Company, Erie

S. K. F. Industries, Philadelphia

Slaymaker Lock Company, Lancaster

Smith Devices, Philadelphia

Smith, Drum & Company, Philadelphia

S. Morgan Smith Company, York

Specialty Screw Machine Products Company, Lancaster

Spicer Manufacturing Company, Pottstown

Standard Piezo
  Carlisle Works
  Scranton Works

Standard Stoker Company, Erie

Standard Steel Spring Company
  Nos. 1, 2 and 3 Plants, Coraopolis

Standard Steel Works
  Baldwin Locomotive Works, Burnham

St. Joseph Lead Company, Josephtown

Sterling Steel Foundry Company, Braddock

Stow Manufacturing Company, Hallstead

Struthers-Wells—Titusville Corporation

Stupakoff Ceramic & Manufacturing Company, Latrobe

Summerill Tubing Company, Bridgeport

Superior Tube Company, Collegeville

Synthane Corporation, Oaks

Sylvania Electric Products, Inc.
  Brookville Plant
  Emporium Plant
  Montoursville Plant

Talon, Inc., Meadville

Textile Machine Works, Reading

J. S. Thorn Company, Philadelphia

Thwing-Albert Instrument Company, Philadelphia

Titan Metal Manufacturing Company, Bellefonte

Treadwell Construction Company, Midland

Treadwell Engineering Company, Easton

Trojan Powder Company, Allentown

Union Boiler and Manufacturing Company, Lebanon

Union Dental Company, Philadelphia

Union Switch & Signal Company, Swissvale

United Cork Companies, Ambridge

U. S. Gauge Company, Sellersville

United Specialties Company
  Mitchell Division, Philadelphia

Vanadium Corporation of America, Bridgeville

Vanity Fair Mills, Incorporated, Reading

Vitale Fireworks Manufacturing Company, New Castle

John R. Wald Company, Milton

Walters Manufacturing Company, Oakmont

Welding Engineers, Inc., Philadelphia

Westinghouse Electric & Manufacturing Company
  Steam Division, Lester
  M. & R. Plant, Philadelphia
  Gearing Department, Nuttall
  Micarta Works, Trafford
  Porcelain Department, Derry
  Main Plant, East Pittsburgh
  Transformer Division, Sharon
  Sunbury Plant, Sunbury

Wyckoff Drawn Steel Company, Ambridge

John Wyeth and Brother, Inc., Philadelphia

Yale & Towne Manufacturing Company, Philadelphia

York Corporation, York

York Corrugating Company, York

York - Hoover Body Corporation, York

York Oil Burner Company, York

York Safe and Lock Company, York

York-Shipley, Inc., York

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